This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

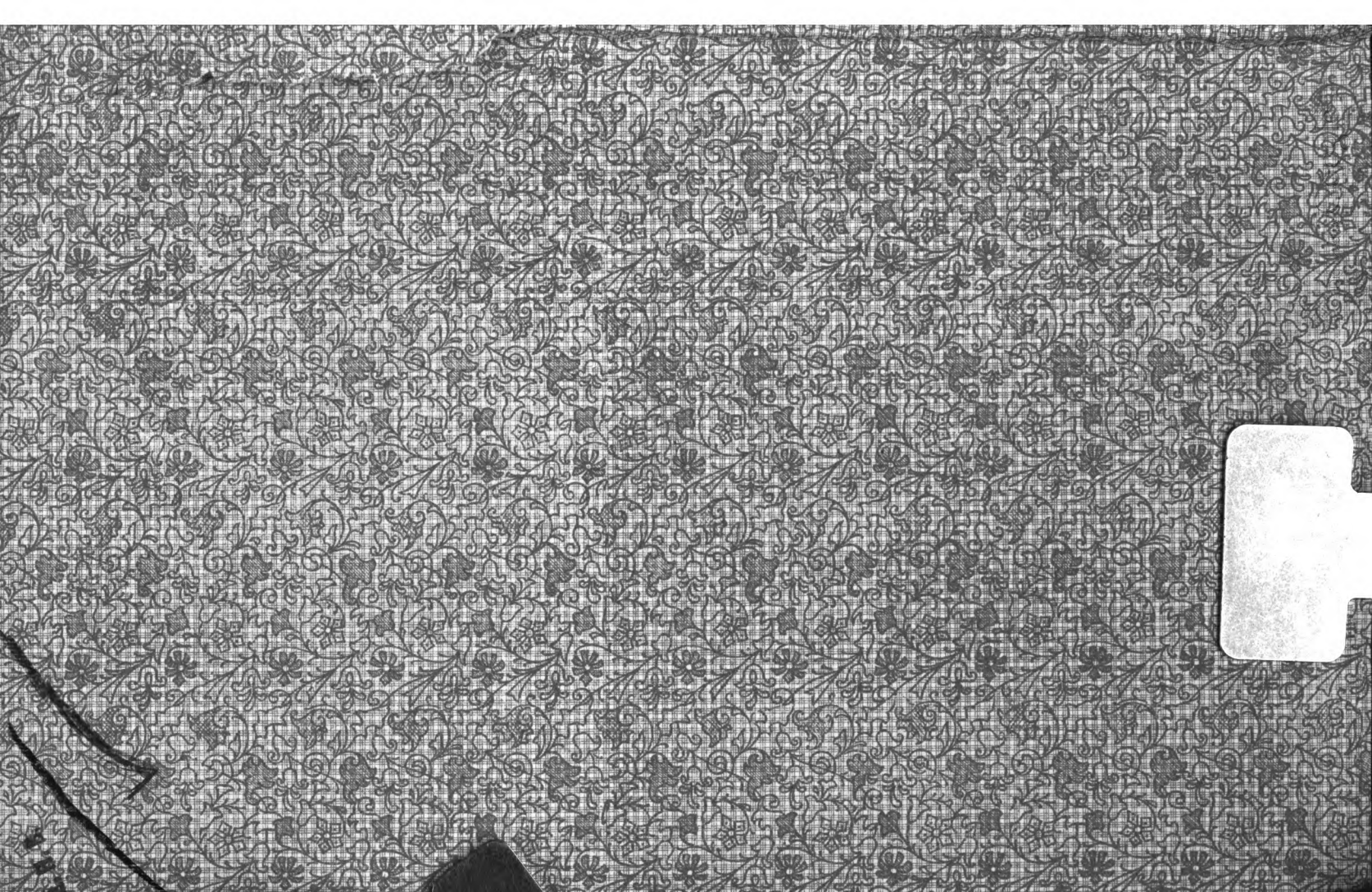
Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

COUNTWAY LIBRARY
HC 2T9F +

MINNESOTA STATE MEDICAL ASSOCIATION

1904

Digitized by Google



Digitized by Google

TRANSACTIONS

OF THE

MINNESOTA STATE MEDICAL ASSOCIATION

THIRTY-SIXTH ANNUAL MEETING

1904

MINNEAPOLIS
NORTHWESTERN LANCET
1904

Digitized by Google

BOSTON MEDICAL
SEP 22 1904
LIBRARY.

Place of Next Meeting will be

ST. PAUL

June 1st and 2d, 1905

CATALOGUED
SEP 22 1904
E. H. B.

Digitized by Google

OFFICERS AND COMMITTEES—1904

OFFICERS

PRESIDENT

JOHN W. BELL, M. D., ... Minneapolis

FIRST VICE-PRESIDENT

GEORGE S. WATTAM, M. D., ... Warren

SECOND VICE-PRESIDENT

JOHN WILLIAMS, M. D., ... Lake Crystal

THIRD VICE-PRESIDENT

JAMES H. HAINES, M. D., ... Stillwater

SECRETARY

THOMAS McDAVITT, M. D., ... St. Paul

TREASURER

RICHARD J. HILL, M. D., ... Minneapolis

COUNCILOR—FIRST DISTRICT

EUGENE A. HENSEL, M. D., . . . Alexandria

COUNCILOR—SECOND DISTRICT

WALTER COURTNEY, M. D., ... Brainerd

COUNCILOR—THIRD DIST.—AND PRES. OF COUNCIL

WILLIAM S. FULLERTON, M. D., . . . St. Paul

COUNCILOR—FOURTH DISTRICT

FREDERICK A. KNIGHTS, M. D., . Minneapolis

COUNCILOR—FIFTH DISTRICT

HARPER M. WORKMAN, M. D., . . . Tracy

COUNCILOR—SIXTH DISTRICT

ALFRED E. SPALDING, M. D., . . . Luverne

COUNCILOR—SEVENTH DISTRICT

FRANKLIN A. DODGE, M. D., . . . Le Sueur

COUNCILOR—EIGHTH DISTRICT

ADOLPH O. BJELLAND, M. D., . . . Mankato

Digitized by Google

COMMITTEES

COMMITTEE ON SCIENTIFIC WORK

FRANK F. WESBROOK, M. D., . . Minneapolis
CHARLES H. MAYO, M. D., ... Rochester
THE SECRETARY . . . . . Ex-officio

MEMBERS OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION

Delegates

FOR ONE YEAR

WILLIAM A. HALL, M. D., . . . Minneapolis

FOR TWO YEARS

HARPER M. WORKMAN, M. D., . . . Tracy

Alternates

FOR ONE YEAR

JOHN T. ROGERS, M. D., ... St. Paul

FOR TWO YEARS

ALFRED E. SPALDING, M. D., . . . Luverne

COMMITTEE ON PUBLIC POLICY AND LEGISLATION

ARTHUR SWEENEY, M. D., ... St. Paul
WILLIAM H. ROWE, M. D., ... St. James
WARREN L. BEEBE, M. D., ... St. Cloud
THE PRESIDENT . . . . . Ex-officio
THE SECRETARY . . . . . Ex-officio

Digitized by Google

Contents

	Page
Officers and Committees	3
Proceedings of the Thirty-sixth Annual Meeting	7
Address of Welcome. Hon. James C. Haynes	31
President's Address—The Art and Science of Medicine. Charles Lyman Greene, M. D.	35
Oration on Surgery. Alexander Hugh Ferguson, M. D.	45
Notes on Management of Fractures of the Lower Extremity with Hodgen's Splint, with Report of Cases. W. T. Adams, M. D.	59
Pneumonia; A Short Review of Its History for the Last Fifty Years. A. T. Conley, M. D.	68
Pneumonia: Problems in Treatment. J. B. McGaughey, M. D.	75
Prostatectomy and Its Results. Archibald MacLaren, M. D.	86
Observation Drawn from an Experience of Eleven Thousand Anesthesias. Alice Magaw	91
On Certain Non-Diphtheritic Membranous Anginas. Louis B. Wilson, M. D.	103
Acute Infections of the Knee-Joint and Their Surgical Treatment. Judd Goodrich, M. D.	117
The Effect of the Operations for Uterine Displacement Upon Subsequent Pregnancy. H. P. Ritchie, M. D.	125
Report of Three Cases of Pregnancy Following Operation for Suspension of an Uterus. J. C. Litzenberg, M. D.	132
The Diagnosis of Chronic Myocarditis. Soren P. Rees, M. D.	139
Prognosis and Treatment of Chronic Myocarditis. J. W. Bell, M. D.	146
Necrosis of Soft Parts Following Enormous Subcutaneous Injections of Adrenalin. F. A. Dunsmoor, M. D.	155
The Etiology and Pathology of Gastric Ulcer. W. D. Sheldon, M. D.	158
Ulcus Ventriculi—Round, Gastric Ulcer or Peptic Ulcer. Charles F. Nootnagle, M. D.	166
Extirpation of the Lacrymal Sac; A New and Simple Method of Operating. Frank C. Todd, M. D.	178
Duodenal Ulcer, Symptoms and Diagnosis. Based Upon Forty-six Operated Cases: 33 Males and 13 Females. Christopher Graham, M. D.	185

Digitized by Google

The Etiological Relationship Between Cancer and Ulcer of the Stomach. Geo. Douglas Head, M. D..... 193
Some Ideas Regarding the Nature of Syphilis. Franklin R. Wright, M. D..... 202
The Importance of Ante-Partum Examination. Frederick Leavitt, M. D..... 206
Surgery in General Practice. W. Albert Gerrish, M. D.... 211
Tuberculosis a Preventable Disease, with Especial Consideration of the Distribution of Tubercle-Bacilli and the Usual Avenues of Infection. J. Frank Corbett, M. D... 218
Subparietal Injuries of the Kidneys, with Report of Four Cases. Walter Courtney, M. D..... 230
Nasal Suppuration from a Practical Standpoint. E. H. Parker, M. D..... 246
The Modern Teaching of Materia Medica and Therapeutics. R. O. Beard, M. D..... 256
Occipital Meningocele, with a Report of a Case Operated Upon. A. E. Benjamin, M. D..... 260
Hypertrophy and Inflammation of the Male Breast. A. R. Colvin, M. D..... 267
The Heart in Acute Infections. J. G. Cross, M. D..... 274
The Recognition of Tuberculosis as a Contagious Disease. Lester W. Day, M. D..... 283
The Indication for Operation on Enlarged Cervical Glands. Warren A. Dennis, M. D..... 288
The Inebriate, a Medical and Social Problem. Arthur W. Dunning, M. D..... 296
The Democracy of Education in Medicine: A Plea for Broadened Policies. George C. Wellner, M. D..... 303
Gangrene of the Throat. J. A. Watson, M. D..... 312
Causes and Treatment of Acute Articular Rheumatism. E. A. Hensel, M. D..... 318
The Surgical Treatment of Varicose Veins. C. H. Mayo, M. D..... 331
Culinary Hygiene: Some Hints on Preparation and Selection of Food. Mary McCoy, M. D..... 338
Scientific Methods in Medical Education. R. O. Beard, M. D..... 346
A Study of Electrical Injuries. H. L. Staples, M. D..... 352
The Abuse of Drugs. C. R. Christenson, M. D..... 364
The Surgical Treatment of Epithelioma of the Lip. J. Clark Stewart, M. D..... 370
Constitution and By-Laws..... 379
Roster..... 390
Membership of County Societies..... 399
Roll of Honor..... 410
Presidents of the Association..... 411
Index..... 412

Digitized by Google

BOSTON MEDICAL
SEP 22 1904
LIBRARY

Proceedings

OF

The House of Delegates

WEDNESDAY, JUNE 1, 1904

The meeting of the House of Delegates was called to order by the president, Dr. Charles L. Greene, of St. Paul, in Elks' Hall, Minneapolis, on Wednesday, June 1, at 3 p. m.

On motion of Dr. Thos. McDavitt the chair appointed as a Committee on Credentials, Drs. J. B. McGaughey, Winona; H. M. Workman, Tracy, and F. A. Dunsmoor, Minneapolis.

Dr. H. M. Workman submitted a report of the Committee on Credentials announcing the names of the following members as duly accredited delegates:

Blue Earth County, Dr. Geo. R. Curran, Mankato.
Blue Earth Valley Society—(Faribault and Martin Counties), Dr. F. A. Hunt, Blue Earth City.
Brown-Redwood County, Dr. O. C. Strickler, New Ulm.
Chisago-Pine County, Dr. C. O. Hertzman, Lindstrom.
Clay-Becker County, Dr. L. C. Weeks, Detroit.
Goodhue County, Dr. K. Gryttenholm, Zumbrota.
Hennepin County, Dr. A. W. Abbott, Minneapolis.
Dr. F. A. Dunsmoor, Minneapolis.
Dr. G. G. Eitel, Minneapolis.
Dr. D. O. Thomas, Minneapolis.
Dr. A. B. Cates, Minneapolis.
Kandiyohi-Swift County, Dr. Christian Johnson, Willmar.
McLeod-Meeker County, Dr. Ernest Hildebrandt, Litchfield.
Mower County, Dr. W. F. Cobb, Lyle.
Nicollet County, Dr. J. W. Daniels, St. Peter.
Olmsted County, Dr. A. L. Baker, Kasson.

Digitized by Google

Park Region Society—(Wilkins, Otter Tail, Douglas, and Grant Counties), Dr. J. A. Freeborn, Fergus Falls.
Ramsey County, Dr. Wm. Davis, St. Paul.
Dr. A. W. Dunning, St. Paul.

Red River Valley Society—(Polk, Red Lake, Marshall, Kittson, Roseau, and Norman (in part) Counties), Dr. C. E. Dampier, Crookston.
Renville, Chippewa, Lac Qui Parle, and Yellow Medicine Counties, Dr. W. M. Beck, Hanley Falls.
Rice County, Dr. F. M. Rose, Faribault.
Sibley County, Dr. D. N. Jones, Gaylord.
Scott-Carver County, Dr. H. W. Reiter, Shakopee.

Southeastern Society—(Pipestone, Rock, Nobles, Murray, Cottonwood, and Jackson Counties), Dr. W. J. Taylor, Pipestone.
St. Louis County, Dr. W. H. Magie, Duluth.
Stearns-Benton County, Dr. G. A. Chilgren, Sauk Rapids.
Steele County, Dr J. H. Adair, Owatonna.
Wabasha County, Dr. W. F. Wilson, Lake City
Washington County, Dr. E. O. B. Freligh, Stillwater.

West Central Society—(Pope, Stevens, Traverse, and Big Stone Counties), Dr. J. Karn, Ortonville.
Winona County, Dr. J. B. McGaughey, Winona.
Wright County, Dr. E. Y. Chilton, Howard Lake.
Waseca County, Dr. D. S. Cummings, Waseca.

On motion of Dr. McDavitt the report of the committee was adopted, and the members named declared the House of Delegates.

The secretary, Dr. Thos. McDavitt, submitted the following report showing the general condition of the Association, and recommending certain changes in the by-laws:

REPORT OF THE SECRETARY

Since the 1903 meeting the following county societies have been made component members: Chisago-Pine, Dakota, Kandiyohi-Swift, Meeker, Sibley, Scott-Carver, Wabasha, Watonwan, Houston-Fillmore.

The paid membership to date amounts to 896.

The secretary would advise that all county societies, if pos-

Digitized by Google

sible, have their annual meeting in January, at which time their officers should be elected, and their delegates to the State Medical Association selected, as there will likely be more members present at an annual meeting, if all are notified. The state dues should be collected at this meeting, and the list of new officers should be immediately returned to the secretary of the State Association, together with a complete list, on official blanks, of the paid membership, with $2.00 per member, State Association dues.

The secretary advises that Sec. 11, Chap. IX, of the by-laws be amended as follows: by striking the last eight words in said section and inserting "before April 1," in lieu thereof; that Sec. 13 be amended by striking out the last six words, and inserting "before April 1st" in lieu thereof; that Sec. 1, Chap. X, be amended by striking out the word "twenty" before minutes and inserting "fifteen."

On motion of Dr. F. A. Dunsmoor the report of the secretary was adopted unanimously.

The secretary then read communications from the Canadian Medical Association and the Northwestern Optical Association extending invitations to the members of the Association to attend their meetings.

Action upon the invitations was deferred until a later meeting.

On motion of Dr. Christian Johnson the chair was instructed to appoint a committee of three, to include the secretary, to properly formulate the proposed amendments to the by-laws, and to report to the House of Delegates at the Friday morning meeting.

The chair appointed as such committee Drs. W. S. Fullerton and Thos. McDavitt, St. Paul, and Dr. H. M. Workman, Tracy.

The Council being called upon for a report, the president, Dr. Fullerton, stated that the report was not ready to be made except as to the work done during the past year in the state, and that each individual councilor was supposed to submit a report of the work done in his district, and if it was the pleasure of the House of Delegates to hear such reports they would be called for.

Digitized by Google

The various councilors then responded to their names as called by the secretary, submitting reports of conditions in their respective districts.

REPORTS OF COUNCILORS

DISTRICT NO. 1

DR. A. E. HENSEL, ALEXANDRIA

I can make my report in a few words. The West Central Society is doing good work. I was up to see them some time in March, and they are carrying on the work as it should be. Their attendance is large, they are reading good papers, and there is practically no dissension so far as I could find out. There is a little complaint about the difficulty in getting to the points of meeting, and that applies also to other sections of my district. Otherwise there is nothing to report that would detract in any way from the good work.

In the Red River Valley Society, at Crookston, I found everything in good working order. They have a good attendance, are reading good papers, and everything seemed to be running smoothly, with the exception that some members could not get to the meetings for want of railroad accommodation, and some of them did not understand how to secure membership in the society until they were informed how to do so. They thought they had not only to join their county society, but also attend the meetings, while the fact is they could join their county society and attend some other society.

My own society is doing good work, having good meetings, and there is no dissension. Our railroad facilities are such that there is no difficulty in getting to the point of meeting.

The Clay-Becker County Society, according to the report of the secretary, is in good condition and doing good work.

I do not know that I have anything further to report so far as my district is concerned.

DISTRICT NO. 2

DR. WALTER COURTNEY, BRAINERD

I have no particular formal report to make in regard to the work done in my district. So far as I am personally concerned, I attended the meeting in St. Paul last fall, and I also attended to the business referred to me by Dr. Reed, of Cincinnati, in regard to the matters to be brought before the Council.

Digitized by Google

As to getting around the district, it was a very hard winter and I did not get around at all. We have a big district, embracing seven counties, and all very large ones, and there being very limited railroad facilities it was difficult to get about the district. Meetings were held at different points, Little Falls, Wadena, Brainerd, Aitkin, Walker, and Bemidji. We have had good attendance at our meetings, but they have not been up to the limit of membership on account of the lack of railroad accommodations. Our meetings have been uniformly successful, interesting papers have been read, and the discussions were instructive. I regret to say I was not able to be present at the last two meetings. I received no report from the secretary before leaving, and I do not know how many new members we took in at the last meeting. I think our district can be reported as in a flourishing condition. I think there is room for more work; a good many more might be induced to join, and I shall do more missionary work next year than I have done in the past.

DISTRICT NO. 3

DR. W. S. FULLERTON, ST. PAUL

Most of my work in the district during the past year has been done by correspondence. I believe we have organized all the counties in the district. There were only two new ones organized since my report a year ago.

Chisago-Pine County has a flourishing society which was organized by correspondence. I also had some correspondence with Mille Lacs and Isanti counties, and have been informed that they have organized to a certain extent, and would complete the organization at the following meeting, but I think no report has come in to the secretary of the association. I have not, and I do not think some of the other councilors have, strictly carried out the letter of our State Association by-laws as to making visits. It has been very difficult to do so. At the same time I think the work has not been neglected. I have only visited one society personally, that at Stillwater, and I think the societies in this district, so far as I know, are in a flourishing condition, and all but three organized, Isanti, Kanabec, and Mille Lacs.

DISTRICT NO. 4

DR. F. A. KNIGHTS, MINNEAPOLIS

I am in the same boat with Dr. Fullerton. I have not been able to make any visitations, having about as much work as I

Digitized by Google

am able to attend to as secretary of the Hennepin County Society. I have done but little work in my district except what was involved in the matter of the disagreement at St. Cloud, about which, I suppose, we will hear this evening. I do not suppose the House of Delegates cares to hear a report on that matter at present as it will come before the Council later. I have no reason to suppose that the societies in my district are not in a flourishing condition, but personally I have not visited any of them, and have received no definite replies to any correspondence on the subject.

DISTRICT NO. 5

DR. H. M. WORKMAN, TRACY

I have visited Sibley County, and they have not a very strong society. The conditions are not exactly satisfactory, and I think it is going to be necessary, in order to strengthen that society, as well as some others in the district, to change the outlines of the district a little if the consent of the Council can be obtained. I shall certainly recommend that a change be made, and I think some of the other members will make a similar recommendation. The visit to Sibley County is the only one I have made. All the counties in the district are organized, and, I think, are doing well. I think there is another advantage or benefit we might gain if the Council could be given a list of non-members in the different counties so we could reach them by correspondence. I do not know who the non-members are, or whether they are or are not in a county society. If we could get the names of such we could write to them at least, and it would be a distinct advantage.

DISTRICT NO. 6

DR. A. E. SPALDING, LUVERNE

I have not visited any of the county or district societies. I have tried to get into correspondence with the Blue Earth Medical County Society, which includes Faribault and Martin Counties, also the Watonwan County Society. I have written to both secretaries twice, but they seem to be troubled with inertia; at least, they did not reply.

In regard to the Southwestern Minnesota District Society, this includes Pipestone, Murray, Cottonwood, Rock, Nobles, and Jackson Counties. They have 33 members, 26 of whom have paid their dues. There are in the district covered by the society 36 physicians, 11 of whom are Homeopaths. All, or nearly

Digitized by Google

all, have been asked to join the society. They have six applications to be acted upon at the next meeting. I think this is the extent of my report.

DISTRICT NO. 7

DR. F. A. DODGE, LE SUEUR

I have no detailed report to make of the organization of the various county societies in the seventh district. I can give only a general idea of the organization working of the various societies. The number of physicians in the district is 147, 90 of whom are members of county societies. McLeod County is thoroughly organized, every physician in the county being a member. The society has 19 members. Rice County has a membership of 18, with 22 physicians in the county. Nicollet has 14 out of 21; Goodhue has 14 out of 23; Dakota has 6 out of 16; Le Sueur, 12 out of 25; Scott and Carver, 7 out of 21. Sixty per cent of the physicians of the district are members of county societies.

DISTRICT NO. 8

DR. A. O. BJELLAND, MANKATO

I have to report that all the counties in my district are organized, with the exception of Dodge. Houston, Fillmore, and Waseca have organized lately. The counties are well organized, the relations seem to be harmonious, and I find all the physicians heartily in favor of organization and full of enthusiasm. Especially is this true where they have experienced the results of organization.

There being no objection, the chair announced the adoption of the reports without the formality of a vote.

Dr. R. J. Hill (Treasurer): There is a matter I wish to speak about to the House of Delegates, and that is upon the question of delinquent dues. At the time of the re-organization of the society, in 1903, there were a number of members delinquent in dues to the society; the amount, as I estimate it, is about $528. All the men that were delinquent up to 1903 have received notice twice, most of them three times. They seemed to consider that the re-organization was a species of bankruptcy, and that they were released from all obligation after that time. Most of these men, if not all of them, came into the state association through their county societies and are regular members of the state

Digitized by Google

organization in good standing. As I understand it I have no authority over them. The only thing I can do is to lay the matter before the House of Delegates. These members have received two and three notices, but $528 is still delinquent. I do not believe it is a fair thing for these men to get out of paying their dues. They have received the benefits of the state society during those three years equally with those who paid up their dues. Under the rules of the old organization I would have had authority to drop them if they had not paid their back dues. I have no personal feeling in this matter, only a feeling of justice to the vast majority of the state society who have paid for these men who are delinquent. I simply bring this matter before the House of Delegates to find out whether there is any way in which I can secure this money.

Dr. Thos. McDavitt (Secretary): In looking over the roster for last year you have noticed that the roster contains a list of names not on the county society list. In talking the matter over with the president and the treasurer we concluded that it probably was best for last year, as long as we had just re-organized, to include them in the list of membership, because they were already members under the old plan outside of having joined their respective county organizations. This action that the treasurer requests has reference to the class of men who were delinquent previous to that time. Under the old constitution they could run three years behind before we could drop them, consequently a great many men were delinquent less than three years, because after three years they could be suspended. It occurs to me that there are only two courses to take in reference to this matter. One is to wipe out the whole thing in a lump, or to drop these men from the county societies. A number of the men who are delinquent are members of their respective county organizations, have paid their dues, and are on our books as members of the association in good standing. It is a good deal of a problem as to what should be done in this matter. If we are radical and demand all this money it will suspend a great many men who are re-

Digitized by Google

ported at this meeting as members who have paid their dues to their respective county societies, and are consequently regarded as members in good standing of the state association.

On motion of Dr. Wm. Davis the matter of delinquent dues was referred to the Council with the request that a report be made to the House of Delegates at its next session, recommending some plan of dealing with the subject subsequently.

Dr. W. S. Fullerton, president of the Council, submitted a formal notice to the House of Delegates relative to the appeal of the Stearns-Benton County Medical Society from the decision of the Councilor of the Fourth District, Dr. F. A. Knights, in the case of Dr. G. S. Brigham.

On motion of Dr. F. A. Dunsmoor the matter was referred to the Council for adjudication as provided by the by-laws.

On motion of Dr. McDavitt the chair was instructed to appoint a committee of three to report nominations for members of the various standing committees and also for members of the Council, and to designate the time such members shall serve.

The chair appointed as members of such committee Drs. Wm. Davis, St. Paul; A. E. Spalding, Luverne, and J. B. McGaughey, Winona.

Owing to the fact that no provision had been made for the payment of a salary to the treasurer for the previous year, on motion of Dr. Davis the treasurer was instructed to pay to himself the sum of $100 for services performed during the preceding year.

Dr. Wm. Davis offered an amendment to Section 3, Chapter VI, relating to the duties of the treasurer, by adding the words, "The amount of his salary shall be fixed by the Council."

On motion of Dr. McDavitt the amendment was referred to the special committee on by-laws.

On motion of Dr. McDavitt the House of Delegates adjourned until 3:30 p. m., Thursday, June 2.

Digitized by Google

THURSDAY, JUNE 2

The meeting of the House of Delegates was called to order by the president, Dr. Charles L. Greene, at 3:30 p. m., June 2, in the library of the Hennepin County Medical Society.

The minutes of the previous meeting were read and approved.

The report of the Council being called for, Dr. W. S. Fullerton, chairman, submitted the following report:

REPORT OF THE COUNCIL TO THE HOUSE OF DELEGATES

Mr. President and Gentlemen:—Your Council begs leave to report as follows:

During the past year the membership of this Association has increased about 350, the roster showing at the present time 896 names. This membership is distributed among 37 component societies in affiliation with the Association. There are but four counties in the state unorganized.

Your Council has audited the accounts of the Secretary and the Treasurer, and reports the same correct. The total debits show $4,330.38; the credits, $1,454.21; balance on hand, $2,876.17.

Touching the matter of dues delinquent to the old State Society, which was referred to the Council, it is recommended that all such dues be remitted, there being no way of collecting the same.

The total expense bill of Councilors amounts to $69.25, and is not included in the Treasurer's report. The Secretary has been instructed to draw an order on the Treasurer for the several bills.

The salary of the Secretary for the ensuing year has been fixed at $300.00. In view of the extra amount of work that has been required of the Secretary during the past year, on account of re-organization, your Council has voted the sum of $200.00, in addition to the $100.00 already paid him as compensation to some extent for his services.

Touching the question of ethics, Stearns-Benton County Medical Society versus Dr. G. S. Brigham referred to your Council, the decision of Councilor Dr. F. A. Knights was sustained unanimously upon the ground that the expulsion of Dr. Brigham from said society was without warrant by either the constitution or by-laws of the County Society or of this Association.

Digitized by Google

The Society is therefore ordered to reinstate Dr. Brigham to membership. At the same time the members of the Council unanimously and emphatically condemn all so-called lodge or club practice, believing that it tends directly to lower the standard, and to degrade the profession and practice, of medicine.

Dr. Brigham made an open statement to your Council that he would within a reasonable length of time resign such practice, and refrain from it in the future, and expressed his willingness to give this assurance to his County Society.

With the view of taking steps to eradicate the evil of club practice, your Council offers the following amendments to the by-laws, and at the same time recommends that the Council be empowered to obtain legal advice upon their legality, inasmuch as it is not the desire of this Association to run counter to the laws of the State, and when such amendments have been brought within the bounds of such laws, that copies of them be printed and distributed among the component societies of this Association, where they shall be thoroughly discussed, and that the delegates of the different societies shall come to the next annual meeting of this body instructed how to vote upon them. Your Council therefore recommends that action upon these amendments be deferred until the next annual meeting.

Your Council begs to report further the following resolution:

RESOLVED, That the Council of the Minnesota State Medical Association emphatically condemns the so-called lodge or club practice, believing that it tends directly to lower the standard, and degrade the profession, of medicine, and is unethical.

This resolution is offered by the Council as an expression of opinion, and is not intended as a by-law of the Association.

Your Council further recommends that the House of Delegates instruct all component County Societies to hold their annual meeting in January of each year.

W. S. FULLERTON,
Chairman of the Council.

On motion of Dr. McDavitt the report of the Council was approved.

Dr. W. S. Fullerton, chairman of the Committee on By-Laws, submitted the following report:

REPORT OF COMMITTEE ON BY-LAWS

Your Committee on amendments to by-laws would respectfully report the following:

They recommend that Section 3 of Chapter 6, which relates to the Treasurer and his duties be changed so that after the

Digitized by Google

first sentence reading, "The Treasurer shall give bond in the sum of $3,000," there shall be added the following sentence: "The Council shall execute said bond with some indemnity company at the expense of the Association."

Your Committee further recommends that there be added to Section 3, Chapter 6, the following sentence, "The amount of his salary shall be fixed by the Council."

Your Committee also further recommends that Section 1 of Chapter 7, which at present reads, "The Council shall meet on the day preceding the annual session," be amended to read as follows: "The Council shall meet on the day preceding the first day of the general meeting of the annual session."

Your Committee further recommends that Section 11 of Chapter 9 be amended by striking out the last eight words and inserting the words "before April first." Also that Section 13 of Chapter 9 be amended by striking out the last six words and inserting the words "before April first."

W. S. FULLERTON,
Chairman of Committee.

On motion of Dr. McDavitt the report of the committee was approved.

Dr. R. J. Hill, Treasurer, submitted his annual report, as follows:

MINNEAPOLIS, MINN., June 1, 1904

R. J. HILL, TREASURER, IN ACCOUNT WITH
MINNESOTA STATE MEDICAL ASSOCIATION

DR.

1903		
June 20.	To amount on hand June 17	$2,015.63
June 20.	Amount collected at St. Paul	40.75
June 15.	H. Holte, Treasurer Red River Valley Society, additional collections	26.00
June 16.	M. P. Hopkins, Treasurer Nicollet County	8.00
June 19.	J. A. Thabes, Upper Mississippi Society	38.00
June 19.	Frank Leavitt, additional Ramsey County	18.00
June 19.	H. M. Workman, Treasurer Lyon-Lincoln, additional	2.00
June 23.	H. H. Wilcox, Treasurer Freeborn County	18.00
June 23.	Delinquent dues	20.00
July 28.	G. M. F. Rogers, Treasurer Wright County	28.00
July 30.	Delinquent dues	9.00
Aug. 5.	G. B. Weise, Treasurer Brown County	10.00
Aug. 15.	Dues collected	23.00

Digitized by Google

Aug. 26.	Dues collected	41.00
Sept. 5.	Dues collected	28.00
Sept. 23.	F. J. Cressey, Treasurer Renville County	8.00
Sept. 25.	Dues collected	21.00
Oct. 10.	Thos. McDavitt, for Olmsted County	26.00
Oct. 12.	Thos. McDavitt, for Ramsey County, additional.	6.00
Oct. 13.	Dues collected	7.00
Oct. 17.	Thos. McDavitt, for Sibley County	16.00
Oct. 20.	Thos. McDavitt, for Wabasha County	24.00
Oct. 30.	Dues collected	21.00
Nov. 20.	Dr. McDavitt for Dr. Jewell, Goodhue County	2.00
Dec. 24.	Dr. McDavitt, for Brown County	10.00
1904		
Jan. 2.	Dr. Jane Hughes, for Blue Earth County, balance	2.00
Jan. 7.	Thos. McDavitt, for Chisago and Pine Counties.	18.00
Jan. 14.	Thos. McDavitt, for Dakota County	10.00
Jan. 18.	Thos. McDavitt, for Chisago and Pine, additional	10.00
Jan. 18.	A. J. Tictin, Maynard, dues 1903	2.00
Jan. 20.	Thos. McDavitt, for West Central Society	42.00
Feb. 12.	Thos. McDavitt, for Washington County Society	32.00
Feb. 12.	Thos. McDavitt, for Steele County Society	18.00
Feb. 12.	Thos. McDavitt, for Winona County Society	42.00
Feb. 18.	Thos. McDavitt, for Winona County Society	4.00
Feb. 22.	Thos. McDavitt, for Stearns and Benton Counties	36.00
Feb. 26.	Red River Valley	50.00
Apr. 12.	Steele County, O. H. Bakke	2.00
Apr. 12.	O. S. Chapman, delinquent dues	2.00
Apr. 12.	Thos. McDavitt, for Rice County	34.00
Apr. 12.	Thos. McDavitt, for Brown County	16.00
Apr. 12.	Thos. McDavitt, for Stearns and Benton, additional	6.00
Apr. 14.	Thos. McDavitt, for Renville	2.00
Apr. 14.	Thos. McDavitt, for Goodhue	10.00
Apr. 14.	Thos. McDavitt, for Mower	10.00
Apr. 14.	Thos. McDavitt, for Olmsted	32.00
Apr. 14.	Thos. McDavitt, for Nicollet	2.00
Apr. 14.	Thos. McDavitt, for St. Louis	80.00
Apr. 14.	Thos. McDavitt, for Southwestern	52.00
Apr. 14.	Thos. McDavitt, for Blue Earth Valley	12.00
Apr. 14.	Thos. McDavitt, for Mower	32.00
Apr. 14.	Thos. McDavitt, for Nicollet	22.00
Apr. 14.	Thos. McDavitt, for Ramsey	258.00
Apr. 14.	Thos. McDavitt, for Clay-Becker	26.00
Apr. 14.	Thos. McDavitt, for Wright	28.00
Apr. 14.	Thos. McDavitt, for Goodhue	14.00

Digitized by Google

Apr. 14.	Thos. McDavitt, for Upper Mississippi	80.00
Apr. 14.	Thos. McDavitt, for W. H. Robillard	2.00
Apr. 14.	Thos. McDavitt, for additional Ramsey, 1903	56.00
Apr. 14.	Thos. McDavitt, for Hennepin County	412.00
Apr. 14.	Thos. McDavitt, for Renville, Chippewa, etc	52.00
Apr. 14.	Thos. McDavitt, for H. Holte, Red River Valley.	40.00
Apr. 18.	Thos. McDavitt, for Renville, etc	2.00
Apr. 18.	Thos. McDavitt, for St. Louis	6.00
Apr. 18.	Thos. McDavitt, for Freeborn	16.00
Apr. 18.	Thos. McDavitt, for Lyon-Lincoln	22.00
Apr. 20.	Thos. McDavitt, for Mower County	4.00
Apr. 20.	Thos. McDavitt, for West Central Society	2.00
Apr. 20.	Thos. McDavitt, for Blue Earth	56.00
Apr. 25.	Thos. McDavitt, for Renville	2.00
Apr. 29.	Thos. McDavitt, for Park Region	52.00
Apr. 29.	Thos. McDavitt, for Wright County	4.00
May 5.	Thos. McDavitt, for Nicollet County	2.00
Apr. 18.	A. J. Golden, dues 1901, 1902	6.00
May 7.	John Landenberger, dues 1903	2.00
May 11.	H. Holte, Red River Valley	6.00
May 11.	W. E. Chapman, Meeker County	14.00
May 12.	Thos. McDavitt, Scott-Carver	10.00
May 14.	Thos. McDavitt, Kandiyohi-Swift	12.00
May 14.	Thos. McDavitt, Kandiyohi, O. F. Thomas	2.00
May 14.	Thos. McDavitt, Kandiyohi, H. F. Hacking	2.00
May 20.	W. E. Chapman, Meeker County	2.00
May 26.	Thos. McDavitt, Watonwan	10.00
May 26.	Thos. McDavitt, Houston-Fillmore	22.00
May 26.	Thos. McDavitt, for W. D. Kelly	2.00
May 26.	Thos. McDavitt, for Waseca	18.00
May 26.	Thos. McDavitt, for McLeod County	30.00
May 27.	Thos. McDavitt, for Stearns-Benton County	8.00
May 27.	Thos. McDavitt, for Renville, etc	2.00
	Total debit to June 1, 1904	$4,330.38

Cr.

1903		
June 18.	W. S. Fullerton, balance ordered by Secretary	$53.80
June 19.	A. G. Long, reporting at meeting	50.00
June 19.	G. M. Coon, St. Paul, overpaid dues	4.00
June 19.	W. S. Fullerton, honorarium ordered by Society.	100.00
June 22.	A. M. Davis, postage transactions	.12
June 24.	McGill Warner Co., 200 badges Executive Com.	12.00
June 24.	Webb Pub. Co., 500 programs Executive Com.	3.50
June 24.	Webb Pub. Co., 550 programs, and postage	18.50

Digitized by Google

June 24.	E. J. Abbott, Chairman Executive Com., printing	2.50
June 24.	J. P. Barber, overpaid dues	1.00
June 24.	R. E. Withey, printing Med. Section	2.45
June 24.	C. L. Greene, Chairman Med. Section, postage, etc.	5.00
June 24.	O. W. Archibald, overpaid dues	1.00
July 28.	A. G. Long, balance reporting	89.75
July 28.	Thos. McDavitt, expenses incorporating society	5.00
Aug. 18.	Postage on roster to Thos. McDavitt	.14
Aug. 18.	F. W. Bigelow, for stamped envelopes Treasurer.	10.60
Aug. 19.	F. W. Bigelow, for printing 500 envelopes	1.50
Sept. 23.	Globe Wernicke Co., supplies for Secretary	18.18
Sept. 24.	Freight on above	1.16
Sept. 28.	C. H. Jennings, typewriting, Secretary	1.25
Oct. 12.	C. A. Wheaton, overpaid dues	2.00
Oct. 15.	T. S. Roberts, overpaid dues	2.00
Oct. 21.	J. L. Puff, repairing typewriter, Secretary	6.00
Oct. 28.	G. W. Cunningham, 500 stamped envelopes, Secretary	12.00
Oct. 28.	G. W. Cunningham, 1,000 stamped envelopes, Secretary	24.00
Oct. 28.	G. W. Cunningham, 1,000 letter heads, Secretary.	4.00
Oct. 31.	Thos. McDavitt, stenographer	8.00
Nov. 2.	Expenses Sauk Rapids 10c, St. Peter 10c	.20
Nov. 12.	Volkszeitung, reprints Constitution and By-Laws	6.75
Dec. 1.	Expenses Herman 10c, Waseca 10c	.20
Dec. 3.	Thos. McDavitt, Secretary for typewriting	8.00
1904		
Jan. 2.	Expenses Fergus Falls	.10
Jan. 2.	American Medical Association, 100 charters	2.50
Jan. 2.	A. Bulove, stenographer, Secretary	10.00
Jan. 18.	Brown, Treacy & Sperry Co., letter file, Secretary	.25
Jan. 25.	American Medical Association for our transactions	638.50
Jan. 29.	Adelaide Bulove, stenographer secretary	8.00
Feb. 11.	Alex. R. Colvin, overpaid dues	1.00
Feb. 12.	A. F. Hall, druggist St. Peter, for Secretary	1.92
Feb. 12.	Globe Wernicke Co., cards, Secretary	1.50
Feb. 13.	Express on transactions	.25
Feb. 18.	G. W. Cunningham, printing, Secretary	6.25
Feb. 26.	J. B. Robertson, overpaid dues	3.00
Mar. 1.	Expenses Rush City	.20
Apr. 11.	Thos. McDavitt, for stenographer	12.50
Apr. 11.	Thos. McDavitt, for stenographer and express	20.00
Apr. 11.	N. W. Stamp Works, seal, Secretary	1.25
Apr. 11.	Expenses Owatonna	.10

Digitized by Google

Apr. 11.	Dr. E. F. Walsh, overpaid dues	2.00
Apr. 14.	G. W. Cunningham & Co., letter heads; Secretary	3.50
Apr. 14.	C. L. Greene, telegram President Roosevelt	.89
Apr. 29.	G. W. Cunningham & Co., envelopes, Secretary	13.20
Apr. 29.	R. F. Lynch, overpaid dues	3.00
May 11.	Thos. McDavitt, stenographer, etc	13.40
May 14.	G. W. Cunningham & Co., 2,000 programs	21.00
May 18.	Thos. McDavitt, salary Secretary, 1904	100.00
May 18.	R. J. Hill, Treasurer, salary 1904	100.00
May 26.	G. W. Cunningham & Co., stamped envelopes, I. M. & I. M. circulars railroad rates	16.45
May 26.	Check to Secretary bank for return check Stearns County	6.00
May 26.	Eben E. MacLeod, order from President and Secretary	11.00
June 24.	R. E. Withy, postal cards	1.85
	Total credit to June 1, 1904	$1,454.21
	Balance on hand June 1, 1904	2,876.17
		$4,330.38

On motion of Dr. Wm. Davis the report of the auditing committee was approved.

On motion of Dr. J. W. Daniels the treasurer was instructed to remit the dues of members delinquent to the old state society.

On motion of Dr. C. Johnson the expense bills of the councilors was approved.

On motion of Dr. A. E. Spalding the salary of the secretary was increased $200 on account of additional work entailed under the re-organization of the association.

On motion of Dr. W. H. Magie the following resolution was adopted:

RESOLVED, That the Council of the Minnesota State Medical Association emphatically condemns the so-called lodge or club practice, believing that it tends directly to lower the standard, and degrade the profession, of medicine, and is unethical.

On motion of Dr. W. F. Wilson the following recommendation submitted was discarded:

That the House of Delegates instruct all component county societies to hold their annual meeting in January of each year.

Digitized by Google

On motion the following amendment recommended by the Committee on By-Laws was adopted:

That Section 3 of Chapter VI, which relates to the treasurer and his duties, be changed so that after the first sentence, reading, "The treasurer shall give bond in the sum of $3,000," there shall be added the following sentence: "The Council shall execute said bond with some indemnity company at the expense of the Association."

On motion of Dr. W. M. Beck the Council was instructed to fix the amount of the treasurer's salary.

On motion of Dr. E. Y. Chilton the following recommendation of the committee was adopted:

That Section 1, Chapter VII, which reads, "The Council shall meet on the day preceding the annual session," be amended to read, "The Council shall meet on the day preceding the first day of the general meeting of the annual session."

On motion of Dr. H. W. Reiter the following recommendation was adopted:

That Section 11 (eleven), Chapter IX, be amended by striking out the last eight words and inserting the words "before April first."

On motion of Dr. A. W. Abbott the recommendation that Section 13, Chapter IX, be amended by striking out the last six words, and inserting the words "before April first."

The following resolution was submitted by the Council, carrying with it an amendment to Chapter IX of the By-Laws by adding Sections 15, 16 and 17:

Sec. 15. Pursuant to carrying out the letter and spirit of Article II of the Constitution of this Association, particularly with reference to that clause which states that one of the purposes of this Association shall be "To guard and foster the material interests of its members and to protect them against imposition," it is hereby declared by this Association that the acceptance and performance, either or both of them, whether in person or by proxy, of any of the duties pertaining to the practice of medicine or surgery under contract or stipulation, written, verbal, or otherwise, for any fraternal society, insurance company, club, or corporation which agrees to furnish to its members or patrons medical or surgical attendance, or requires

Digitized by Google

its physicians to furnish such services to its members or patrons, for a fee or remuneration less than the minimum fee charged for like services in private practice in that locality, is disreputable practice within the meaning of the term as used in this Constitution and By-Laws; and such practice on the part of any member of the profession shall constitute sufficient ground for his rejection by, or expulsion from, any affiliated county society.

Nothing in this section, however, shall be construed as applying to government, state, county, or municipal institutions; nor to legitimate hospitals or dispensaries; nor to the chief surgeons of railway systems, shipping or mining companies, or their assistants under salary; nor to prevent any physician or surgeon from extending his gratuitous services to the poor.

Sec. 16. All county societies in affiliation with this Association are hereby ordered to incorporate this Section, No. 15, beginning with the words, "It is hereby declared by this society, etc.," in their by-laws.

Sec. 17. Any affiliated county society admitting to or retaining in membership one who is guilty of the aforesaid disreputable practice shall have its charter revoked, and shall be expelled from this Association.

On motion of Dr. W. F. Wilson the words "and is unethical" were added to the second resolution.

On motion the resolution recommending the amendments to Chapter IX of the By-Laws was unanimously adopted by a rising vote.

On motion of Dr. McDavitt the credentials of Dr. H. H. Adair, of Owatonna, representing the Steele County Medical Society, were received, and he was declared a member of the House of Delegates.

Dr. Freeborn, of Fergus Falls, being obliged to leave the city, on motion of Dr. McDavitt the Park Region Medical Society was empowered to appoint a substitute delegate.

On motion of Dr. W. S. Fullerton the motion adopting the resolution regarding club practice was reconsidered.

On motion the resolution as originally read, eliminating the words "and is unethical," was adopted.

On motion of Dr. E. A. Hensel, Dr. Valentine, representing the Lyon-Lincoln County Medical Society, was ad-

Digitized by Google

mitted as a delegate in the absence of a regular delegate or alternate.

The following recommendations of the president, Dr. Charles L. Greene, were read by the secretary:

A. That some plan be devised for the systematic education of the public in matters of public health and medical progress.

B. That the American Medical Association be urged to take active steps to further advance the requirements of medical schools as to preliminary education and graduation.

C. That the stand taken by the Regents of our State University for higher preliminary requirements be commended by resolution of this body.

D. That the standard of both departments of medicine in the University be made uniform as to preliminary requirements.

E. That a proper memorial be prepared for presentation to the family of Dr. Franklin Staples, of Winona, Minn., and that proper memorials be drafted concerning other deceased members of the Association for the past year.

F. That all insurance companies be requested to insert in their blanks the following question, "Are you a member of your county society?"

G. That the Legislative Committee be instructed to begin its work at once, and conduct a June campaign.

H. That the American Medical Association be requested to express itself upon the question of club and contract practice.

I. That a committee be appointed to confer with our Board of Regents as to the expansion of facilities for research work.

J. That it shall be the duty of the secretary to present on the last day of the general session a summary of the proceedings of the Council and House of Delegates.

On motion of Dr. F. A. Dunsmoor the chair was instructed to appoint a committee of three to consider and report upon the president's recommendations.

On motion of Dr. E. A. Hensel the Legislative Committee was instructed to investigate the matter of reciprocity between state boards of medical examiners, and, if found favorable, that it be the sentiment of the House of Delegates that the Minnesota examining board reciprocate with

Digitized by Google

boards of other states having equal requirements.

The subject of a state medical journal having been brought up, on motion of Dr. Geo. R. Curran the matter was referred to the Council.

On motion Dr. Chas. H. Mayo was appointed a delegate to the meeting of the Canadian Medical Society to be held at Vancouver in August of the current year.

On motion the House of Delegates adjourned until 10:30 Friday morning.

FRIDAY, JUNE 3

The meeting of the House of Delegates was called to order at 10:30 a. m., June 3, in the library of the Hennepin County Medical Society, by the president, Dr. Charles L. Greene.

The minutes of the previous meeting were read by the secretary and approved.

On motion Dr. A. Henderson was named as associate delegate to the meeting of the Canadian Medical Society.

Dr. E. A. Hensel, Councilor of the First District, appointed Dr. John Lyng, of Brandon, to represent the Park Region Medical Society in place of Dr. Freeborn who was called away.

On motion of Dr. J. B. McGaughey, Dr. W. E. Browning and Dr. H. M. Kolb, representing the Houston-Fillmore County Medical Society, were admitted as members of the House of Delegates.

In the absence of the chairman, Dr. Wm. Davis, Dr. J. B. McGaughey, in behalf of the Nominating Committee, submitted the following report:

COUNCILORS

For one year, Dr. A. E. Spalding, Luverne, and Dr. A. O. Bjelland, Mankato.

For two years, Dr. F. A. Knights, Minneapolis; Dr. E. A. Hensel, Alexandria, and Dr. F. A. Dodge, LeSueur.

For three years, Dr. W. S. Fullerton, St. Paul; Dr. Walter Courtney, Brainerd, and Dr. H. M. Workman, Tracy.

Digitized by Google

COMMITTEE ON SCIENTIFIC WORK

Dr. F. F. Wesbrook, Minneapolis, and Dr. C. H. Mayo, Rochester.

COMMITTTEE ON PUBLIC POLICY AND LEGISLATION

Dr. Arthur Sweeney, St. Paul; Dr. F. M. Rose, Faribault, and Dr. W. L. Beebe, St. Cloud.

On motion the report of the committee was adopted, and the secretary instructed to cast the ballot in favor of the nominees.

Dr. F. A. Dunsmoor placed in nomination the name of Dr. John W. Bell, of Minneapolis, for the office of president of the association.

Dr. J. A. Lyng, of Brandon, placed in nomination Dr. C. H. Mayo, of Rochester.

The chair appointed as tellers Dr. F. A. Dodge and Dr. C. E. Dampier.

Upon a ballot being taken and counted the result showed a total of 31 votes cast, of which Dr. Bell received 25 and Dr. Mayo 6, and Dr. Bell was declared elected president.

On motion of Dr. J. A. Lyng the election of Dr. Bell was made unanimous.

Dr. G. S. Wattam, of Warren, was nominated for first vice-president, and on motion of Dr. W. F. Wilson the secretary was instructed to cast the ballot of the house in favor of Dr. Wattam.

Dr. John Williams, of Lake Crystal, was placed in nomination as second vice-president, and on motion of Dr. H. H. Adair the secretary was instructed to cast the ballot of the house in favor of Dr. Williams.

Dr. J. C. Haines, of Stillwater, was nominated for third vice-president, and on motion of Dr. Freligh the secretary was instructed to cast the ballot of the house in favor of Dr. Haines.

Dr. Thos. McDavitt was nominated to succeed himself as secretary, and on motion of Dr. H. M. Workman the president was instructed to cast the ballot of the house in favor of Dr. McDavitt.

Digitized by Google

Dr. R. J. Hill was placed in nomination as successor to himself as treasurer, and on motion of Dr. A. O. Bjelland the secretary was instructed to cast the ballot of the house in his favor.

On motion of Dr. E. A. Hensel Dr. H. M. Workman was elected a delegate to the American Medical Association for two years.

On motion of Dr. McDavitt the secretary was instructed to cast the ballot of the house in favor of Dr. John Rogers, of St. Paul, for one year, and Dr. A. E. Spalding, of Luverne, for two years, as alternate delegates to the American Medical Association.

On motion of Dr. W. S. Fullerton the delegates were instructed to secure a definite expression of opinion from the American Medical Association in the matter of contract or lodge practice.

On motion of Dr. McDavitt the secretary was instructed to insert the word "and alternate or alternates" after the words "delegate or delegates" in Section 11, Chapter IX, of the By-Laws, providing for the election of an alternate for each delegate.

Dr. J. B. McGaughey submitted the following resolution, and on his motion it was adopted:

RESOLVED, That it is the sense of the House of Delegates that only the alternates elected by the component societies shall be granted admission as members of the House of Delegates in case of absence of the delegate.

The subject of necessary business to be transacted between the annual meetings of the House of Delegates was brought up by the secretary, and on motion the house put itself on record as approving any necessary business transactions by the secretary during the interim.

A motion was offered by Dr. Fullerton providing that members whose names appeared on the Roll of Honor of the former society, and who have become members of a county society, should have that portion of the dues paid to the state association remitted, and that the secretary be instructed to refund to them such dues heretofore paid.

Digitized by Google

The motion being put to a vote was lost.

On motion of Dr. A. B. Cates it was decided to continue the Roll of Honor, but that all members be required to pay their annual dues.

On motion of Dr. A. W. Abbott it was decided that the alternate delegates to the American Medical Association be invited to meet with the House of Delegates at its next meeting.

On motion of Dr. McDavitt the recommendation of the president, that the secretary present to the Association on the last day of the general session a summary of the proceedings of the Council and House of Delegates, was ordered incorporated in Section 4, Chapter VI, of the By-Laws.

On motion of Dr. J. B. McGaughey the delegates to the American Medical Association were instructed to place before the Association the following recommendations of the president:

"That the American Medical Association be urged to take active steps to further advance the requirements of medical schools as to preliminary education and graduation."

On motion of Dr. McDavitt the president was instructed to appoint a committee of three to prepare a suitable memorial to be presented to the family of the late Franklin Staples, of Winona, and that it also be spread upon the records of the Association.

On motion of Dr. G. A. Chilgren the subject of medical education of the public was referred to the Council with authority to take such action as they might deem fit.

On motion of Dr. W. S. Fullerton the recommendation that all insurance companies be requested to insert into their credential blanks the question, "Are you a member of your county society?" was referred to the Council.

On motion of Dr. E. A. Hensel the House of Delegates commended and endorsed the action of the Board of Regents of the State University in the position taken for higher preliminary requirements.

Digitized by Google

On motion of Dr. McDavitt the motion was reconsidered, for the reason that the requirements of the Homeopathic department are not the same, and that the motion would carry with in an endorsement of the action of the Board of Regents relative to the partial exemption of that department.

On motion of Dr. McDavitt the president was instructed to appoint a committee of three to draft an endorsement calling attention to this fact, and to express regret that the Board of Regents saw fit to make exceptions in the requirements of the Homeopathic department.

The president named as such committee Drs. Thos. McDavitt, St. Paul, Walter Courtney, Brainerd, and W. H. Rowe, St. James.

On motion of Dr. McDavitt the president was named as chairman of the committee to draft resolutions on the death of Dr. Franklin Staples. The chair named as the two additional members, Dr. Thos. McDavitt, St. Paul, and Dr. J. B. McGaughey, Winona.

On motion of Dr. W. S. Fullerton the House of Delegates adjourned.

Digitized by Google

ADDRESSES AND PAPERS

ADDRESS OF WELCOME

HON. JAMES C. HAYNES

Mayor of Minneapolis

Mr. President, Ladies and Gentlemen:—It is customary when state organizations are assembled in conventions of this nature for the chief executive of the city in which they meet to extend a word of greeting, and, in pursuance of that custom, I am before you this morning at the kind invitation of your presiding officer and executive committee.

I wish the weather were more fitting for a word of welcome, but you all know that Minneapolis is customarily a "wet" city, and it is carrying out its reputation this morning.

I often think when I am called upon to speak to my medical friends of the immense change that has taken place in your profession, as well as in the material interests of the country since I chose my profession, that of the law. I never have occasion to face a body of medical gentlemen without recurring to my early experience, and the kind invitation I received from my old family physician to become one of your number, and the answer I gave him, which, at that time, was more appreciated than at present, especially more appreciated in the country than in the city. He had asked me once or twice when I had finished school if I would not come and study medicine with him. On the third occasion I met him on the road one morning, and he said to me, "James, have you decided what profession you are going to take up? Are you not going to come into my office? Perhaps it is your best gait." I remember that phrase distinctly. I said, "Yes, doctor, I have decided upon a profession." "What are you going to do?" he

Digitized by Google

asked. "I replied, "I am going to read law. When I tell you the point that determines my conclusion you will see how little ambition I have to become a doctor." He said, "What is it." I replied, "Simply this, doctor; when I go home at night, and retire to my bed I want to stay there till morning."

Now, the old time practitioner of the country and the country village, and some of the new time practitioners who are in general practice in smaller towns, realize exactly what that meant, and to my boyish mind that was sufficient. It shows what a little thing will sometimes change a man's views on an important question. But I had made up my mind to take the other profession, and perhaps the dread of being called out at night at all hours was not the sole reason. I think every young man in choosing a calling follows a natural bent. He may not understand it, but it is there. He responds to it. There is something in the proposed calling of a life-time which appeals to him for one reason or another, and which enlists his hearty sympathy and his determination to take hold of some calling in life and to make the most of it, and, in that connection, to make the most of himself.

I wish to congratulate you upon this convention, and upon this splendid purpose which brings you together in this consultation, this exchange of ideas. I think perhaps at the present time the profession, perhaps the least progressive, of any—the law. Necessarily so. I can say in all candor that your profession is, of all of the learned professions, the most progressive, and necessarily so from the very condition of things. The law deals with human rights, principles of political economy, and the duty and practical administration of public affairs from the standpoint of the legal right of each and every citizen. You deal with the physical welfare of man, primarily and essentially. Each of the so-called learned professions has its origin in the repressed instincts of the human heart and mind. This is the case in each one, the clerical, the medical and the legal; each has its place and part in the grand economy of every

Digitized by Google

sound government, and each is doing its part for the betterment of society, the uplifting of man, and the gradual fulfillment of Almighty God in working out the destiny of a free people.

I have admired, as I think every man must, the marvelous progress that has been made in recent years in the medical profession,—a progress that speaks for the highest and best thought of the strongest men and women among you. Perhaps this is due to the simple fundamental truth, that men only begin to live for themselves and the society of which they are members when they grasp the thought that it is the good of the whole that is at stake, and not a fee in a particular case; not the mere compensation, which is indispensable in the practice of any profession, but after all, that is the least, although an absolute necessity, but the real thing, the highest thing, is that which makes, not for the treating of disease, be it physical, spiritual, moral, or financial, but for the prevention, the elimination of the causes which produce the various illnesses from which the body politic suffers; and I can say to you, in all conscience and candor, without any attempt at flattery, that you are performing a tremendous service in doing your part in your profession, and that you do it best when you assemble and discuss the various theories which underlie or outrun the principles you practice. There must always be a sound theory before there can be a successful practice. This is true of law; it is true of medicine; it is true in every human undertaking. There must always be a high ideal before there can be any approach to sound practice, and it is the man, young or old, who grasps that thought and puts it into effect that constitutes the loyally good citizen.

Right here I want to say a word for the men and women who work hard and faithfully and are hardly ever heard of—men and women who never hold, or care or expect to hold a so-called honorable position. In my judgment, and as I measure men in life, it is not the men in prominent places that society owes the most to—by no means; it is the men and women in any given calling or profession who put into that profession the best that is in them, morally, in-

Digitized by Google

tellectually, and industrially. They may never be heard from, but as a part of the whole they are doing their whole duty—they are doing it nobly and faithfully, doing all that anyone can ask of them; and it is to the large numbers of those brave servants of right-doing that the world owes its debt of gratitude, and it is upon them we must depend for the whole social fabric of civilization to hold together. If they do not do their work well, if they become faithless, the prominent man, who is the honorable head so-called, will be of little consequence. He is simply a servant of the rest where we put him, and it is the faithfulness of the masses of the profession and of the whole community, whatever calling we may be placed in, that we must depend upon for the maintenance of our civilization and the perpetuity of our free institutions. Now, because I do feel that you represent the best thought and feeling of a learned profession, a liberal profession, I feel that you are not met together simply for the purpose of promoting your own personal aggrandizement and welfare, but to advance and assist the best interests of society, to bring happiness to homes, to consider those subjects which relate to our physical welfare especially, and thereby contribute a large sum to the human welfare—it is for such reasons that I rejoice to welcome you here this morning to our fair city, and to extend to you the greetings of our citizens.

We are glad to have you with us, and we hope you may enjoy yourselves with us during your visit, and, let me say, when I welcome the Minnesota State Medical Association to this city I do not greet you in the name of the city of Minneapolis alone, but in spirit I join with the mayor of our sister city to greet you to the great metropolis of the Northwest, a city of over 400,000. If we only properly understand it, we are the eighth city in the Union, not the nineteenth or twentieth, but the eighth, with all the prestige that goes with such an aggregation of wealth and power.

We are glad to have our friends from all over the state, especially from the city of St. Paul, with us to-day. I hope your deliberations, as I know they will be, may be harmonious and successful, and that out of this meeting there may come great good for the future.

I thank you for your kind attention. (Applause.)

Digitized by Google

PRESIDENT'S ADDRESS

THE ART AND SCIENCE OF MEDICINE

CHARLES LYMAN GREENE, M. D.

St. Paul

However old its art, the *science* of medicine belongs to the 19th and 20th centuries, and its advance in the past one hundred years has been greater than during the whole period from the birth of Æsculapius to the death of Jenner. Empiricism has yielded to reasoning and deduction, fact born of scientific experiment has displaced and supplanted theory and the snap diagnostician has met his death at the hands of the modern pathologist.

The modern physician has lost none of his humanitarian spirit, and with the wiping out of distinctions of school has come a broader and more receptive mentality that augurs well for the future.

One of the greatest advances within the profession itself is the tendency to the closer union of the physicians themselves. For years the medical society, county, state, or national, has represented only a spirit of good fellowship and a desire to give and receive the mutual stores of learning and experience. The societies have been loosely organized and poorly attended; they have lacked cohesion and authority, and in consequence have accomplished far less than they should for the individual physician, for the profession, and for the public. The re-organization of the American Medical Association has changed all this in a wonderfully short time. Now the county medical society finds itself an active vital part of a great and powerful organism; in a single year the state association finds its active membership doubled by the accession of accredited numbers, and as if bathed in the magic fount its old and infirm body takes on at once the vigor and promise of a lusty youth. The value of

Digitized by Google

such an association lies in its ability to promote (a) measures of public health; (b) higher medical education; (c) the highest possible ethical standard; (d) the maintenance of correct relations between the profession and the laity it serves.

PUBLIC HEALTH

Most unbearable of all the burdens that a physician carries is the knowledge that all infectious diseases are unnecessary. He sees the yearly record of thousands and hundreds of thousands of deaths from diphtheria, tuberculosis, and typhoid fever, and wonders that people are so easily moved by the horrors of war and so apathetic in the face of this slaughter of the innocents in time of peace. He cannot understand why, in the face of proven facts, the mothers and fathers of the land sit calmly by—commit constructive murder in fact—when they should rise on every hand to protect their children from disease and death. It seems to him that *every* press and pulpit in the land should preach the doctrine of health, and that *every* judge should be interested in the strict enforcement of laws made to lengthen life, abolish unnecessary suffering, and preserve the happiness of the home.

At present every physician must be a missionary and expect to receive, oftentimes, the treatment accorded his fellow of theology at the hands of barbarous and unenlightened peoples. This will not long endure; our national body must work for and will secure a national board of health, must spread the *gospel* of health abroad in the land, and seek in every way to secure laws that will remove the curse of infectious disease.

All these things physicians can and will do, and we may hope to live to see the day when all men will recognize the fact that nearly every death by contagion represents an antecedent criminal act.

MEDICAL EDUCATION

The advance made in medical education in the past thirty years is something to be proud of, and in this, the State of Minnesota has played a great and worthy part.

Digitized by Google

Within our limits a great state medical school has developed whose policy is in line with the ideas of the most advanced educators of the country. The action recently taken in connection with the admission requirements in the department of medicine of our State University is as creditable as it is unusual, and plainly shows the breadth of mind and the high purpose that actuates its Board of Regents and its President.

There are but three medical schools in the United States whose requirements equal that of the University of Minnesota, and all about her are rivals who encourage a large registration by adherence to the older standards, and pour out annually their flood of new-fledged physicians to swell the over-crowded profession.

What this state and this country want is fewer physicians, but better trained men. Minnesota now requires one year of academic work, and offers any of her graduates who shall have completed two years of selected academic work and four years in medicine the double degree of B. S. and M. D. from the full faculty, a concession which well illustrates the changed attitude of the purely academic man towards the once despised "medic."

Within a short time *all* entrants will be required to have credits for two years of academic work leading to medicine, and all such who graduate will receive the double degree. The present high standard was adopted with the full knowledge of the fact that it means cutting down the classes by fifty per cent.

This is a step which should receive recognition and commendation at the hands of this Association. Furthermore, this body should urge the American Medical Association to insist that the American Medical College Association advance its requirements all along the line. The profession is being continually disgraced by the half-educated men turned out by proprietary schools; and while much has been done to better conditions, the action taken has been halting and insufficient. It should be made impossible for a purely proprietary, low-grade school to exist in any state in the Union.

Digitized by Google

Our state medical laws should be amended along the lines suggested by the Legislative Committee of this society at the last session, and every effort should be made to carry out the high purpose of the original framers of legislation which marked Minnesota as a pioneer in advanced medical education.

EDUCATION OF THE PUBLIC

One of the most difficult tasks that our Association faces is that of instructing the public in an effective way, yet such work is indispensable to really effective legislation for their protection. When our antivaccinationists besieged the legislature last year, it seemed for a time as if the plain lessons of the past might be forgotten; both pictorially and typographically certain papers sought to show the greediness of the physicians who sought to deprive free American citizens of their right to become masses of putridity, and infect their friends and neighbors with a disease as unnecessary as the plague and as great a disgrace to any community harboring it. Even the innocent, mild-eyed calf was credited with appalling possibilities in the transmission of vile diseases.

I am of the opinion that people are a trifle over-protected by their physicians; they have grown to rely upon the medical man as one who will cut his own throat in a financial sense to protect them and theirs, work single-handed against ignorance, greed, or fraud, and accept with philosoppy the insulting innuendoes or direct assertions impugning his motives. Perhaps it might be better for all concerned if we were content to assume a neutral attitude and let our exchequers swell, but we have acquired the habit of putting aside self-interest, and it is unlikely that we shall change, but by all means let us confine ourselves to the prevention of preventable disease. Let us leave patent medicines and similar side issues to meet their inevitable downfall through other agencies. The handwriting is on the wall for their reading, and we may trust the organization now dealing with this question. It will accomplish more in five years than we could in a century. But some way should be found

Digitized by Google

to keep communities advised as to what the science of medicine is and does. Every county society might have certain of its meetings open to the public, and might arrange a special program and discuss topics of public value. These should be conducted with great care, and be devoted wholly to the questions of medical progress and the prevention of disease. Topics should be so assigned and so handled as to do away with any question of self-laudation or advertisement.

I participated in a meeting of this kind attended by an exceptionally clever audience, some months ago, and believe that a great amount of good resulted from a most interesting and delightful evening. Something of this sort must be done before our work can reach anything like its proper measure of usefulness.

SCHOOLS OF MEDICINE

From the medical school to schools of medicine is a long step, for the former has proven the destruction of the latter. One may say with confidence that in the light of scientific medicine no distinction of school can exist. With the broadening of our knowledge has come so great a spirit of tolerance that we are prepared to say to any man: "Educate yourself in those matters concerning which we have positive knowledge, and we shall not quarrel with your therapeutics."

THE CODE OF ETHICS

Since the last meeting of the American Medical Association all of our members have had an opportunity to read the revised code of ethics recommended. The changes made in the old codes have nearly all represented a distinct advance, and place us in a better and more fitting attitude toward the public. There was something manifestly absurd in some of the old paragraphs relating to the duties of the patient to the physician, and these have been stricken out. Such matters of discussion as would naturally fall under this head may well be considered in connection with our next topic, viz.,

Digitized by Google

THE RECIPROCAL RELATIONS OF THE PHYSICIAN AND THE PUBLIC

The change in attitude and character of the physician necessarily resulting from the enormous scientific advance of the past century must sooner or later find its true reflection in the public that he serves, and the national association will no doubt do its part in educating the public and thus bring them to a better understanding of the status and functions of the physician.

Civilization is as yet but skin deep, a mere film of refinement and intelligence laid all too lightly upon a foundation structure of primitive ignorance and superstition. The demonological origin of disease, and the value of amulets, charms, and magic rites, find their modern prototype in such cults as Christian Science, of which it has been aptly said that it is neither Christian nor scientific; and the thinness of our civilization veneer is proven by the primitive credulity of otherwise educated and intelligent people. In the middle ages the head of the family would brave more than the terrors of death in order to obtain the mandragora growing at the gallows' foot and possessed of healing virtues and protective powers so great as to make it a sort of tutelary deity. The belief was universal that no human ear could withstand the shriek of the uprooted plant when gathered at midnight in the full of the moon. Our own visionaries are not far removed from the simpler folk, and would be as well employed in buying mandrake or mullen, or striving to possess the magic wand as in seeking to practice and promulgate a flimsy doctrine whose one sole germ of truth has been public property since the dawn of creation.

Yet we must not expect too much of the people; our great-great-grandfather may have burned innocent men and women for too intimate an acquaintance with a personal devil, or perchance may himself have suffered for night riding on the flying broomstick. There are times when we feel that, as Lowell said of a certain outbreak of infectious lunacy, every brain must have its private maggot, and it sometimes seems that mental dyspepsia outweighs in im-

Digitized by Google

portance its physical namesake. But truth is mighty and will prevail. Medicine is stronger and better each year because of its steady search for truth to add to truth, and because of the altruism of its basic principles. Failure to comprehend and appreciate the fundamental barbarism of our modern structure makes it difficult for the physician to understand the attitude of a portion of the people towards him and his work. He points to the unselfish labor, the self-sacrificing devotion of seekers after medical truth; he glories in the altruism of a body of men whose first thought is to *prevent* disease, men who seek to find and point out the way of health to those who are often too blind to follow it. How long, he asks, must the physician preach the doctrine and the law of health to unheeding ears? When will the mothers and fathers of the land unite to banish the destroyers of their children? Why are the ignorant and unskilled, the charlatans and faddists, unable to command support and obstruct the making and administration of beneficent laws? He finds no answer, yet he may be of good cheer; the day is near at hand when the passage of good sanitary laws and their enforcement with rigid hand, will put an end to the needless epidemics of typhoid, diphtheria, scarlet fever, and its fellows, as it has already well-nigh banished small pox from well vaccinated countries.

The day will come when no public officials shall dare to give their people diluted sewage for drink, and when every judge will fine or imprison the man or woman who carries death from house to house. A hundred years from now tuberculosis will be as rare as leprosy, and such innocent children and brilliant men and women as now die miserably and prematurely shall live in health. The bonds uniting our profession to the people will be knit close and even closer, if we keep our own house in order, and strive in the future as in the past to keep medicine a profession and not make of it a trade. Pursued in the spirit of philanthropy and scientific endeavor, its repulsive features serve but to bring out in clearer and higher relief its ennobling virtues. Trade is honorable, but the medical tradesman is degraded

Digitized by Google

indeed. The scavenger's is a better and cleaner office than that of the physician who forgets the fundamental precepts of his guild. He who patents means of cure, or the commercialist who buys and sells his patients, is a living source of danger to the profession.

To the practical, cool-headed, scientific attitude of the seeker after truth must be added the higher ideals that have drawn to our body in the past the best of the brain and heart of an intelligent people. Not only must we seek to make better doctors by abolishing the low-grade schools and raising the standard of graduation throughout the land, but we should help and encourage the fit amongst our youth to adopt our profession, and discourage the unfit. We must encourage and support our medical societies to the end that one great body shall move obedient to the will of its democracy, preach the truths of medical science, uphold its rights, end enforce its beneficent laws. As before stated, we look to the American Medical Association to improve the public health, to disseminate knowledge, to promote fraternity, and to punish the skulker and grafter. The power for good that can be exercised by this body is beyond expression, and it becomes the duty of every physician in good standing to enroll himself in its ranks.

PURITY OF PROFESSIONAL MOTIVES AND CONDUCT

We may thank God that the curse of sectarianism is removed from medicine, that there is no longer a "school," new or old, and that no sectarian body can long exist in the fierce light of modern medicine. Such belonged to the time and dark realm of the theory; we live in the full sunlight of proven truth. Division into warring schools checked advance, and prevented progress.

It is good to know that any man who is earnest, honorable, and properly educated becomes our confrere, and that the "pathies" have fallen flat from very lack of opposition. The modern physician seeks truth to add to accumulated truths. The faddist with his one idea, his inflated pretensions, his perilous narrowness, presents perhaps his

Digitized by Google

one grain of gold in his mass of baser metal. This one elementary grain of truth the physician stands ready to take, develop, and use; and its dogmatic possessor is despoiled for the public good. In the old days of almost pure theory the faddist had his opportunity. In our day he is an anachronism. The symptoms of disease, sound anatomy, and pathology leave little ground for strife as to methods of treatment. We should welcome truth even though buried deep in the mould of error, but we should set our faces and our hands against ignorance, dishonesty, and quackery, in or out of our profession. Above everything we should condemn and punish the commercialist in medicine, and cherish and maintain the humanitarian ideals which have ennobled and dignified our past, and will ensure for all time a place for medicine second to no other calling.

DR. FRANKLIN STAPLES

A few months ago there passed from this world to a better, from daily suffering to perfect peace, a man who in himself exemplified all that is best in our profession.

Dr. Franklin Staples was loved by all who knew him. In his public relation he worked without thought of himself for the good of his kind. His interest in this society did not cease when he retired from the presidency he so worthily filled, in 1871, for even when he was too ill to attend our meetings he added his valuable contributions to our programs.

His interest in medical education is only partially shown by the fact that he once filled the chair of medicine of the State University and was one of those foremost in the movement for a higher standard as prerequisite to state licensure.

Up to the day of his death he worthily held the presidency of our State Board of Health, and up to the very last days of his life neither pain nor fatigue prevented him from filling the office in fact, and not merely in name.

Though his body was crippled by incurable and advancing disease, his mind never lost hold upon things medi-

Digitized by Google

cal. Article after article of interest and value came to us from the hands of this courageous man, who faced the inevitable with a Spartan courage and fortitude tempered by a natural sweetness and humanity that suffering seemed only to strengthen.

On one of the too rare occasions when I visited him at his home, he was surrounded by visitors, his "boys and girls" as he put it. Mothers and fathers themselves, but brought into the world under his ministrations. They and their mothers loved and respected this kindly, fearless uncomplaining, pain-racked man, and the latter days of his useful life were filled with the knowledge that their gratitude, sympathy and love encompassed him.

By his death we have lost a loved and respected confrere, but in his life and its rewards we find encouragement for the possessors of kindly hearts and doers of good deeds.

If the measure of human responsibility be the use made of God's gifts to the individual man, our departed friend fulfilled to the utmost his obligation, and the world is better for his work and example.

Let us all work for the catholicity of our profession, and oppose dogma only by the presentation of irrefutable truth. Whenever the commercialist threatens let us think of the unfitness of his doctrine for our true physician who sees the birth of a new life in pain and suffering, who sees the full and rounded life slip gently back to the arms of its Creator, who must be confidant and comforter, who soils his hands with unnameable filth, and jeopardizes his own life that others may escape peril and suffering.

Fear not that in the end a reward will be lacking. A medical profession true to its old ideals will be to the great public as the loved country physician to his flock, honored and respected; guide, counsellor, and friend.

Digitized by Google

ORATION ON SURGERY

ALEXANDER HUGH FERGUSON, M. D.

Chicago

Ladies and Gentlemen:—Standing before this learned body for the first time, I am affected by conflicting emotions, by those of pleasure in being with you, and by those of regret at not having been here before. I cannot conceive of a greater honor in the life of any man than that of addressing such a professional body as this association. To look around this room and behold the smiling faces of distinguished and generous friends would stir to the core a more phlegmatic nature than mine. For the moment I fail to find words that adequately express my appreciation of your compliment. Permit me frankly to say that it was not within the limits of my ambition to resist your kind invitation, not that I had no friends among you, but that I needed more, and also that I might observe the wise injunction that:

"The friends thou hast and their adoption tried,
Grapple them to thy soul with hooks of steel."

I am fully aware that your association wields a vast influence and power, not alone in its own state, but also throughout the entire Union. Its deliberations and productions are profitably read, studied, and digested by members of similar bodies of many and far distant states. Not a few of your members have gained international reputation, and, judging from the original and practical papers published year by year, by you, there is no doubt in my mind in the valuable legacy that is to be handed down to posterity.

Your high professional attainments, I am sure, forestall any necessity for a lengthy oration from me on surgery. I

Digitized by Google

shall not endeavor to eulogize the surgery of the past, nor have I time to recite that of the present, let alone speculate on that of the future.

As an active worker and teacher, it frequently happens that unsettled questions bearing on etiology, diagnosis, and treatment confront me, as they do us all, and it occurred to me that I might be borne with should I occupy a portion of your valuable time in briefly discussing some surgical problems and practices.

"There are many events in the womb of time that will be delivered."

The evolution of the surgeon in solving surgical problems out of medical mysteries had its dawn with discoveries and its development with scientific progress. The progress made in all the sciences collateral to medicine has materially contributed to solve surgical problems and to apply suitable remedies.

Great and fertile conceptions of the sciences are ever unfolding the all-pervading and mysterious buds of hidden truth that we may, according to unchangeable laws, behold things as they are, and often, too, enable us to predict future changes to a certain extent, to counteract or modify these changes and even develop the evolving materials at hand. Complete as our explanations of different phenomena in human nature may appear, they are only partial explanations at best, for the reason that nature works by unseen elements and invisible forces of natural selection of which we know little or nothing. The individual, man, woman or child, when stricken by disease or accident, is our special ward, and we are proud to say that the decrease of suffering and death was never in the history of man so marked as now.

As carpenters of human kind, our special office on this earth is the intelligent exercise of that scientific knowledge which bears on the divine art of healing, and it is our sacred and imperative duty to seek that knowledge.

With a full realization of the importance of this occasion, I feel that I can trust you to credit me with giving evidence of surgical truths, as I see them, and whatever I

Digitized by Google

may lack in lucidity, let me entertain the hope that my enthusiasm, which I have never been able to control, and for which I offer no apology, will be emulated by the younger members of the profession.

Instead of elaborately delving into one branch of surgery, it is rather my object to extract a little sweetness from several subjects, as the busy bee gets nectar from different flowers, and to present it to you in a palatable way. My first selection is regarding

CLEFT PALATE

The surgical problem connected with the successful closure of a cleft in the hard and soft palate is a mechanical one, to a large degree.

Other things being equal, the operator who has steady and nimble fingers can speedily, accurately, and successfully perform plastic operations within the mouth that baffle one less endowed by nature. In my opinion, there are few operations performable on the human body that test the skill of the surgeon more than uranostaphylorrhaphy, and, when properly and deftly executed, it is a most beneficial procedure. It is a fact that one grows fond of difficult cases in proportion to his successful management of them.

In my judgment, the points to be borne in mind in these cases are (1) that no tissue be sacrificed; (2) that the raw surfaces be coapted as broadly as possible; (3) the stitches must not bear tension; (4) in young children, too much operative work must not be done at one sitting; (5) the cleft should be entirely closed before the child begins to talk, in order to obtain a perfect physiologic result. It may be wise to complete the work in different sittings, three to six weeks apart. Even though the case is not treated when young, I would advise operation, for the reason that phonation is always more or less improved, and the unpleasant flow of nasal discharges into the mouth is terminated. The crushing of the two superior maxillæ together is a formidable major operation on an infant, and I am constrained to say that at no age, or under any conditions, is it necessary.

Digitized by Google

A careful selection of the methods of flap formation and the coaptation of these to bridge over the deficiency fulfills all reasonable indications. (See Journal A. M. A., May 16, 1900, and Annals of Surgery, Oct., 1902.)

I shall now call your attention to the

EXTIRPATION OF THE SUPERIOR MAXILLA THROUGH THE MOUTH

The usual and old-fashioned incisions inflicted upon the face to give us alleged ample room for the removal of the superior maxilla are not necessary, and should be discarded. I am convinced by my own experience that a diseased superior maxilla is more quickly extirpated through the mouth, with practically far less hemorrhage, and with infinitely better results, than by the prevailing methods. It is but the work of a few minutes to tie the external carotid artery, and the dangers from active hemorrhage are anticipated and prevented. This vessel may be ligated a day or two before the jaw is removed. Dilating the mouth often to the extent of cracking the lips in several places is a valuable preparation for the operation proper, in that considerably more room is obtained through which to manipulate. If the constitution of the patient permits of it, morphine may be administered to the amount of producing marked drowsiness an hour or two before beginning the operation. It will then be found that less chloroform is required to anesthetize the patient, as well as a consequent diminution of pain and shock.

This operation has been previously published (Western Medical Review, April, 1901). Suffice it to say, that two small incisions are made about half an inch long, one over the nasal process and the other over the junction of the maxilla with the malar bone, and through these an osteotome is passed, and then forced through the bony attachments, respectively, with a few blows of a hammer. The hard palate and alveolar process are also severed with the osteotome. A few well directed strokes with a strong knife separate the jaw-bone from the cheek and soft palate, after

Digitized by Google

which it is but the work of a minute to dislodge the bone, pack the cavity with iodoform gauze, and the operation is completed. The surgeon who is inexperienced or timid in undertaking this operation should first perform it a few times on the cadaver.

Another subject that has attracted the special attention of doctors, on account of its enigmatic behavior in health and disease, is the

THYROID GLAND

One of the mysterious ductless glands is the thyroid. Embryologists tell us that it develops from the floor of the pharynx by three anlagen which unite (Minot), and has a thyrolingual duct opening into the foramen cecum, but long before the child is born this duct is closed (closed eighth week, fetal life). In proportion to the body weight, it is larger in the infant (0.16 per cent) than in the full grown (0.5 per cent). Its normal weight in adult life is from 25 to 60 grams, which varies in persons of different countries and sections of a country. It has a capsule, etc., but the two structures most noticeable for their abundance are the blood vessels and lymphatics. The substance produced by the cubic or cylindric cells lining the glandular follicles is a colloid material, homogeneous, viscid and albuminous.

It is evident (Piersol) that the blood capillaries come into immediate contact with the gland cells, and the lymph spaces and lymphatics, as a rule, contain colloid material. How it gets there is not known, but it is believed by Horsley, Pozzi, Biondi, and others that the follicles open directly into the lymphatic vessels, and thus act as excretory ducts to the thyroid, while others believe that absorption accounts for it.

A prodigious amount of research has been done by Berkley, Wolfler, Sandstrom, Kohn, Edmunds, Hofmeister, Prenant, Pozzi, Horsley, Biondi and many others to ascertain an accurate knowledge of its minute anatomy. It was discovered by Schiff in 1856, that animals could not live without the thyroid gland. A quarter of a century

Digitized by Google

later Reverden and Kocher demonstrated that operative myxedema resulted from its total extirpation, and death resulted probably from toxic paralysis of the centers of respiration.

The existence of accessory and parathyroids no doubt accounts for the contradictory results obtained by different operators dependent as they are upon whether they were all removed or not. Its presence is necessary to the enjoyment of good health and development, but beyond this the function of the thyroid gland is not known.

The ill effects of thyroidectomy on animals are counterbalanced by the injection of the extract of the gland, or by grafting gland tissue (Schiff). It was Murray (Br. Med. Jour., Vol. II, 796, 1891) who applied this discovery to man and found that thyroid preparations ingested and absorbed from the alimentary canal removed the symptoms of athrepsia. The valuable researches of Baumann, Hutchinson, Ross and Wells on iodothyrin found in the colloid material in the normal follicles are in the right direction, and by the time the ingredients of the colloid matter in the follicles of the thyroid of exophthalmis subjects are discovered, then, and not till then, can a chemical cure be expected. In the meantime, the surgeon has to remove the gland, for thyroidectomy results in more amelioration and cures of the disease than any other treatment yet prescribed.

BOSTON MED. LIBRARY SEP 22 1904

There is a hidden relationship between Graves' disease and the other ductless glands that furnishes a vast field for research. One may be a complement to or a controller of the other.

EXPLORATION

I shall not bore you with a description of the different methods employed to explore the brain, chest wall, abdomen, and large joints. While embued with a conviction of the value of two modes of procedure, probably new, one to explore the abdomen and the other for the purpose of bringing into view the interior structures of a knee-joint, I am sure you will excuse me for recommending them.

In our daily round of work we meet cases requiring col-

Digitized by Google

potomy, anterior or posterior, to remove myomata, cysts, or what-not, and these same cases often give a history of stomach, gall-bladder, kidney, or bowel disturbances. An examination of the abdominal organs would be highly satisfactory, although oftentimes one feels hardly justified in opening through the abdominal well for that purpose. The problem is solved by passing the hand and entire forearm into the abdominal cavity through the vagina. In order to furnish enough space for this purpose, it is imperative to cut through the mucous membrane of the vagina its whole length on each side post-laterally. The mucous membrane, being severed, the other structures stretch at once. The bare arm being smeared over with sterile vaseline glides in with ease. I have within the last three years, both in private practice and at my public clinics, passed my hand through the vagina to the diaphragm, and palpated all the abdominal organs. In one case, detecting gall-stones. I cut down upon the gall-bladder, and pushed it, full of biliary calculi through a button-hole incision in the abdominal wall. In another case a cancer of the rectum was present, and before removing it, it was indicated to learn the condition of the internal organs. I passed my hand as above mentioned, and detected cancer of the liver and gall-bladder.

Still a third case, a maiden lady of mature years, had a vaginal outlet so small that a digital examination could not be made without an anesthetic. I then found cancer of the posterior lip of the cervix. Through an anterior colpotomy I passed my hand, having, of course, split the vagina on each side, and found the anterior surface of the stomach involved with a firm, hard tumor, evidently cancerous in character, and the lymphatics were also extensively enlarged, no doubt with the same dreadful disease.

For the purpose of pointing out the value of this method of exploring the abdominal cavity, the three cases referred to are sufficient examples, and I shall not relate others. In the first case, a second operation for gall-stones was avoided, and in the other two instances a major operation was pre-

Digitized by Google

vented, which if performed, would surely have injured the art of surgery.

The knee-joint exploration consists simply in a long semilunar incision into the joint on its external aspect, nicking the patellar tendon at the one end, and cutting the outer half of the sheath of the quadiceps extensor muscle at the other. It is astonishing the facility with which this flap containing the patella can be thrown inwards over the internal condyle, and how beautifully it exposes the entire interior of the joint.

The superior advantages of this exposure of the joint are so self-evident that no comments are required. Every facility is afforded for even a complete excision of the joint.

HERNIA

The surgical anatomy, the symptoms, the etilogy, and the treatment of ruptures of the anterior abdominal wall have been thoroughly studied, and are now fairly well understood. The etilogy of inguinal hernia is still a problem. While it is correct to say that congenital oblique inguinal hernia is usually due to the non-closure of the funicular process at the internal ring, it does not furnish us with an explanation why this process remains patulous in some men and closes in others. When we consider the physiologic process by which the testicle descends from the abdominal cavity to the scrotum, it is not surprising that oblique inguinal hernia is five times more common in the male than in the female, and that over three-quarters of all abdominal hernias are of this kind. In a dissection of 500 hernial subjects by Cloquet, he found imperfect closure of the internal ring so common that he deemed it the rule rather than the exception. It is occasionally open, and no hernia protrudes; then it must be that the valvular arrangement of the structures at the interal ring and along the canal is normal, and Cooper's fascia strong and firm. In a perfect anatomic subject the internal ring is so smoothly closed over that an infundibular process of the peritoneum is very insignificant, or not at all perceptible; the valve formation of the internal

Digitized by Google

ring and canal absolutely prevents a giving away at the internal ring, for the more the intra-abdominal pressure increases, the tighter the valve closes, provided, however, that a normal muscular and aponeurotic support protects it external to the transversalis fascia.

The two main structures that stand on guard to protect the internal ring are the internal oblique muscle and the aponeurosis of the external oblique, the former being the active agent ready to contract instantly the moment the ring is unduly approached by a sudden increase of intra-abdominal pressure, as is done in running, jumping, lifting, etc. The fact is that in oblique inguinal hernia the internal ring receives no substantial protection from the internal oblique muscle, for the reason that it is not attached to the internal aspect of Poupart's ligament sufficiently low down, and as it passes downwards and inwards, from its deficient origin, it passes above the center of the internal ring. Indeed, the origin of this muscle may be entirely deficient at Poupart's ligament, and this affords an opportunity for a sausage-shaped protrusion of a hernial nature in the groin. Is it not probable that this congenital defect of the internal oblique muscle is accountable for the non-closure of the internal ring? If the internal ring is protected during the descent of testicle, one should suppose that the muscular tonicity would soon close the course the testicle had taken behind the internal oblique muscle.

The key to the radical cure of oblique inguinal hernia is to suture the internal oblique muscle and its tendon to the inner aspect of Poupart's ligament, as low down as possible, without undue tension, after first having ablated the sac, and strengthened the internal ring with a few stitches above the root of the cord.

Any operation for the cure of hernia that raises the cord out of its natural course is empirical, and empiricism is the very thing that thinking men through all the centuries have been trying to elude. If all our work were done on the plan of expediency, the search for the truth in the science of surgery would lose its charm, and the art of imitating nature would lose its beauty.

Digitized by Google

In the anatomic or typical operation the sac is tied on. Why? To restore the rotundity of the peritoneum, the transversalis fascia is sutured nicely around the root of the cord. Why? In order to obliterate a pathologic infundibuliform process, and make a new internal ring. The internal oblique muscle is sutured to Poupart's ligament at least two-thirds the way down which is the usual attachment found in the female. Why? That a congenital defect be rectified and the muscle be allowed an opportunity to protect the internal ring; and the aponeurosis of the external muscle is then sutured and the skin coapted, for the reason that they may occupy their normal place in this region. It will be noticed that no step is taken without a valid anatomical reason. ("A Typical Operation," etc., Journal A. M. A., April 11, 1899.) When the hernia is a direct one, or the conjoined tendon deficient, an additional procedure is often required, and that is to split the sheath of the rectus muscle, and sew it over to Poupart's ligament, across the weak point. Should, however, the entire inguinal area be deficient, thinned out, atrophied, or degenerated, I have not hesitated to transplant a portion of the sartorius muscle to this region.

FISTULÆ AND METHYLENE-BLUE

It has been my practice for some time past to stain all fistulæ with methylene-blue before attempting their removal, and I have found it of the highest practical value. A branchial fistula is sometimes difficult to follow with a probe or by sight on account of its small and frail nature. If, however, methylene-blue is forced into it, staining of its lining membrane takes place, and there is then no difficulty whatever in following the blue trail, however serpentine it may be in its course. Take, again, a horseshoe anal fistula, with its friable inner surface, and crooked course, how often have we been perplexed in trying to differentiate the limitations of the disease. Methylene-blue forced into the fistula just before operating stains it perfectly, and defines its extent; thereby the operative procedure is simplified, and no

Digitized by Google

more tissue is removed than necessary, such tissue being clearly manifested by the stain.

In several cases of fecal fistulæ when I employed the methylene-blue I was able to trace them with accuracy and great ease. Over a year ago I was invited to hold a clinic at Michigan University, and of the cases produced there was one with three fistulæ, two fecal and one biliary; the bile came through one of the fecal openings, all following operations for suppurative appendicitis. The methylene-blue staining converted what would have been a formidable, tedious, and difficult task into a comparatively safe and easy one. The stain followed a small fistula among adherent coils of small intestine to the upper portion of the jejunum, from which the bile escaped, and the clearness with which its course was demonstrated was marvellous. Another blue streak was followed, and it brought us on to a large and chronically inflamed and perforated appendix, situated far in and behind the cecum and colon. The other fistulæ were in the large bowel and easily detected. Just a short time previous to this, I operated on a similar case, referred by Dr. Gunn, of Clinton, Ont., Canada, in which the bile escaped through the orifice of a fecal fistula in the large bowel, following an operation for appendicitis. A separate, tortuous, fistulous track led to the upper small bowel, which gave a passage-way for the bile, which could not have been readily traced were it not for the methylene-blue stain. The appendix was hidden behind the large bowel.

In dealing with the different varieties of rectal, vesical, vaginal, and ureteral fistulæ, the aid of methylene-blue, as above described, is invaluable.

By staining an impassable stricture of the urethra by injecting methylene-blue into the penis, the small tortuous stricture is colored blue, and then the Wheelhouse operation is facilitated, and the course of the stricture followed by sight from before backwards.

In bone surgery it is equally useful. Cavities in the long bones are more accurately cleaned out when they are thus

Digitized by Google

stained. In performing a mastoid operation, upon making a small opening through the bone, if methylene-blue is forced into the suppurating cavity, the various directions in which the disease extends are made obvious.

I have written so much about the next disease that I shall devote but a few words to it, lest its importance might be forgotten. I refer to

NEPHRITIS

A great deal of thought and work have been given to the surgical treatment of nephritis since the appearance of my first article on this subject (March 18, 1899). While decapsulation of the kidney has been performed upwards of 200 times, by different surgeons, still there are many unsettled questions concerning it. The immediate and remote benefits that are derived from decapsulation and puncture, as well as from decapsulation and nephrotomy, or from nephrotomy alone, are no longer questioned by those of experience in this line. In cases of decapsulation and nephrotomy, the other kidney frequently improves so as to excrete normal urine, for which I venture no explanation. We make bold now to declare that nephritis, interstitial, parenchymatous, or diffuse, is purely a surgical subject, and that in its treatment internal medication is a sad failure. Chronic Bright's disease, once permanently established, is as much a surgical problem as is the inflamed appendix, gall-bladder, or hypertrophied prostate. It must be remembered, too, that chronic interstitial and parenchymatous changes, or both, have been going on a long time before the disease is detected or makes itself manifest by producing ill-health. It is not consistent with common-sense, reason, or accrued knowledge to say that interstitial nephritis is chronic from the start, as many authors would have us believe.

Although I feel that I am your welcomed and privileged guest to-day, and would be allowed to say a good deal more, I must, however, respect your kindness and endurance, but permit me to point out briefly a few of the many other important branches not yet mentioned.

We have within a few years seen the operation of pros-

Digitized by Google

tatectomy generally adopted the world over for the relief of prostatic hypertrophy, and in that time the Bottini operation has had its initiation, rise and fall. We enjoy brilliant achievements in ureteral surgery. The artistic hand of the surgeon has been successfully laid upon the wounded heart, diseased lung and fevered brain. While much has been done surgically for the liver and biliary tracts, the stomach and the intestinal canal, there are still many unsolved problems connected with them that are attractive to the inquirer. The vicious circle is not yet cleared away; whether we do a gastroenterostomy anteriorly or posteriorly, it is not always prevented. In addition to this, we can anastomose the proximal with the distal arm of the loop of bowel, and still it comes. We may then tie off the proximal arm, close to the stomach, as advised by Fowler, and say to ourselves, "Now I have got you"; but I am not so sure of that, for I have seen a case that continued to vomit, and died after Finny's operation, just as they often do with a viciuos circle. A partial explanation may be that the secretions from the stomach, duodeum, liver, and pancreas are sometimes so abundant that a shocked and paralyzed bowel cannot evacuate them per vias naturales. Diseases of the pancreas are being successfully treated by drainage, and so I might go on and on, and hint at many other things that may yet be accomplished by surgery, as in certain forms of diabetes, obscure brain lesions, and in pneumonia.

PNEUMONIA

This last disease is so fearfully fatal, and medication is so futile, that one is impelled to do almost anything that offers even a ray of hope for recovery. I believe that a person should not be allowed to die of pneumonia without removing a rib and draining the lung at the seat of origin of the disease, before the person is too much poisoned, on the one hand, or before the opposite lung is put out of commission, on the other. This is food for thought. The idea is not at all new with me, and I have two cases in support of my belief; one a case of inflammation of the right lung

Digitized by Google

with complete consolidation and some pleuritic fluid of a whitish nature which I then (1888, Winnipeg General Hospital) believed to be pus. Judging empyema to be the condition, I removed a portion of the seventh rib in the mid-axillary line, and finding no empyema I proceeded and explored the consolidated lung in search of an abscess, but in vain. I used a large trocar and canula, inserted my finger into lung tissue, and finally drained the lung with gauze. My object then was to check any bleeding that might follow. I was abashed at my procedure, but the patient made one of the most rapid recoveries I ever saw. Resolution began to take place immediately, and I received extravagant praise for my work. The other case I refer to was one of a tubercular pneumonitis (of the middle lobe of the right lung), published by me about three years ago, in which a recovery took place after drainage of the lung parenchyma and insertion of iodoform. The consolidation cleared away within a short time and I considered drainage contributed largely to the gratifying result.

Now I must close, and thank you.

Digitized by Google

NOTES ON MANAGEMENT OF FRACTURES OF THE LOWER EXTREMITY WITH HODGEN'S SPLINT, WITH REPORT OF CASES

W. T. ADAMS, M. D.

Elgin

It is my purpose to discuss the use of Hodgen's splint with a modification of Buck's extension, in the management of fractures of the lower extremity, particularly with reference to fractures of the femur, with a special view as to technique, believing as I do that the splint would be used more frequently than it is if the technique were better understood, and the wide range of application appreciated.

In selecting a dressing for a fracture, there are two considerations paramount to all others; first, to secure the member so that there is perfect coaptation of the fragments and hold them in perfect alignment; second, to secure the greatest amount of comfort for the patient. Another important consideration is an apparatus that is always easily obtainable, readily applied, and that will require the least amount of care afterward.

To my mind the splint under consideration meets these requirements better than anything yet devised, and while it is mentioned in many of the works on surgery, a definite technique is not clearly set forth in any of them. It is to that end, therefore, that I invite your attention, while I give the technique I am in the habit of using, hoping that it is sufficiently near the original to justify the name, Hodgen's splint.

The splint consists of a frame made preferably of quarter inch round iron. For a patient who measures five feet ten inches in height, the inner bar should measure thirty-seven, and the outer bar forty-two, inches in length. Join the

Digitized by Google

lower ends with a cross-bar four and a half inches long, so that the ends are even. Join the upper ends with an oblique, over-arching bar, and join the middle of the long bars with another over-arching bar, at a point about fifteen inches from the upper end of the inner bar. The arched bars should arch upward six inches. The distance between the long bars is easily adjusted by bending the arched bars, and should be wide enough apart to allow a space of an inch or inch and a half on both sides of the limb when applied. All joints between the different parts of the frame are to be securely welded, and can be made by any ordinary blacksmith.

When the frame is adjusted to the limb, the upper end of the inner bar should come in close proximity to the perineum, and of the outer bar, above the trochanter, close to the crest of the ilium, while the arched bar, which joins the same, inscribes a line corresponding with the groin. The opposite end of the frame will reach a point some six or more inches beyond the sole of the foot, which allows for the application of the extension, as will presently be seen. The length of the frame is easily altered to suit the individual case. It is better to have a frame too long than too short, as the extra length does no harm, while if the frame is too short the extension cannot be properly applied. It is desirable to arch the frame upward two or three inches, to provide for more or less flexion of the knee.

The splint, which, when adjusted, hangs anteriorly to the limb, and gives it the name "anterior splint," is now to be provided with a bottom or bed upon which the limb rests. This is best accomplished for simple fractures by sewing a piece of cloth, preferably a good firm piece of stockinet, securely across the frame from bar to bar, thus forming a basket in which the limb rests. Care should be taken in every instance to have this covering or "basket" extend well up to the upper end of both side bars, so that good support is given to the trochanteric region and hip-joint. This is of the utmost importance in dressing hip-joint and other fractures in the upper region of the femur.

Digitized by Google

In preparing the splint for compound fractures, it is better to construct the bottom or "basket" with strips of strong muslin, or, preferably, of bleached cotton flannel, about three inches wide, sewed securely to the inner bar, while the fastening to the outer bar is best made with pins. This allows the opening of the dressings at any given point, without disturbing the limb. It is well to adjust the "basket" so that, when the limb is resting in it, it will sink about one-third to one-half of its depth below the side bars. This makes it convenient to add such padding to the sides of the limb as may be required to secure its fixation. It is well to provide the basket with a long pad of cotton loosely wrapped in gauze, extending the whole length of the splint for the limb to rest upon.

SUSPENDING THE SPLINT.—Locate the patient's bed as pleasantly as possible, with the head of the bed far enough from the wall to allow it to be moved back and forth, lengthwise, about two feet. A pulley is now screwed into the ceiling directly over the patient's ankle and provided with a soft flexible rope or sash-cord, eight or ten feet long, with an iron ring, an inch and a half or two inches in diameter, securely tied to one end of it. To this ring hang the splint with two pieces of muslin bandage rather more than a yard long by passing them through the ring, then securely tying both ends of one piece to one bar, and of the other to the other bar of the splint, at points about midway of the patient's thigh, and midway between the knee and ankle, respectively. The splint is now suspended by making traction upon the rope, raising it just high enough to clear the bed, then the free end of the rope should be securely fastened to the bedstead. The pieces of muslin passing through the ring, allow the limb to seek its most comfortable position, and a certain freedom of motion, without being detrimental to the fracture.

The amount of extension is increased or diminished at will by pushing the bed farther under or away from the pulley. If considerable extension is required, it is well to elevate the foot of the bed three or four inches, and a foot rest

Digitized by Google

is required to enable the patient to keep up in bed. The foot board of the bed should be low enough to allow the splint to project over it.

To Apply the Splint.—Apply strips of plaster to the limb in the same manner as for Buck's extension, using preferably, zinc oxide rubber adhesive plaster, as it will not excoriate, taking care to extend the plaster as far up the limb as the seat of fracture, so as to distribute the pressure as widely as possible, to relieve the knee-joint from strain and subsequent tenderness, and extend it eight or ten inches beyond the sole of the foot. A muslin or gauze roller should now be applied so as to support the plaster its entire length as far down the limb as the malleoli. From this point the plaster should not be included in the roller, but left free. The limb is now placed in the splint with the upper end of the inner bar close to the perineum, and the free ends of the plaster are to be securely fastened to the cross bar, as widely apart as possible, to prevent pressure on the malleoli. Extension may now be applied as directed, and any further padding or adjusting required, may be added.

The amount of extension to be applied must be determined by the operator in each case, and should be just enough to secure the proper length and adjustment of the limb. It is my belief that that object is gained better by the lifting and oblique pull with this splint, and with less fatigue to the patient than by any other form of dressing. The point must not be lost sight of that the extension is applied by the obliquity of the rope, and is increased or diminished by increasing or diminishing the obliquity by pushing the bed forward or backward under the pully, and the extension is transmitted to the limb by the strips of plaster fastened to the foot of the splint.

I know of no form of fracture, simple or compound, of the lower extremity, that may not be safely and comfortably cared for with this splint. The operator has perfect control of the limb all the while and can inspect any and all parts of it at any time without disturbing the patient, and once well applied it is less likely to be misplaced by the patient than

Digitized by Google

most other forms of dressings; besides it gives the patient more freedom of motion about the bed than most other dressings. To this dressing may be added any amount of padding and adjusting splints desired in special cases, and permit me to suggest right here that the old-fashioned many tailed bandage is one of the greatest conveniences there is in managing compound fractures, especially with this splint. There is no fracture box that possesses any advantages over this splint, and while I would not advocate it as strongly for fractures below the knee as above, yet I know of no dressing that excels it for any fracture of the lower extremity.

Another point I will suggest is the amount of bodily exercise the patient may enjoy with this splint, which obviously carries him through the ordeal in better shape, and enables him to use his limb more readily when released from the dressings, than other forms of dressings that confine him more closely. Most patients can be bolstered up a good deal every day, without injury to the fracture.

CASE 1.—Q——, 72 years of age, stepped out of the door on ice, slipped and fell heavily, striking squarely on his right hip, sustaining an impacted fracture of the neck of the femur. Dressed the limb with Hodgen's splint, in which it was retained for about seven weeks, when the patient was allowed to be up on crutches, and at the end of three months from the date of injury, he was able to go about with the aid of a cane, and in a short time could get about nearly as well as before the injury.

CASE 2.—D——, laborer, 35 years of age, fell from a barn loft, a distance of fifteen feet, striking upon his right side on a plank floor, sustained a fracture through the trochanter. His injury aside from the fracture was considerable, and he suffered severely from shock. He was placed in bed and his leg dressed with Hodgen's splint. He made a good recovery and was allowed to be around on crutches at the end of seven weeks. The fracture was firmly united and has given no further trouble. He is lame and his leg is very much shortened as the result of a previous fracture

Digitized by Google

of the same femur in the middle third, with poorly adjusted overlapping fragments.

CASE 3.—A. H——, eleven years of age, was riding on the sweep of a horse power in an elevator. While passing over the tumbling-rod, his trousers caught in the knuckle of the rod, his body thrown forward and his leg wound several times around the rod, when fortunately the horse was stopped. When he was taken out, his clothing was nearly torn from him, and his leg was frightfully mangled. The femur was broken twice in the middle third, and both the upper and lower fragments were protruding through the flesh. The tibia was broken into three fragments, with the middle fragment nearly separated from the soft parts of the leg. The fibula was broken only once in two, and like the tibia, was nearly bare of flesh. The soft parts of the leg were torn spirally from the upper end of the tibia, downward and outward nearly to the ankle, and both bones were nearly denuded. The entire wound was ground full of fine dirt of the horse power track. It was evident that the blood supply was seriously interfered with, and the possibility of saving the limb was seriously considered. I cleared it up as best I could and drew the torn fragments of tissue together, placing a large number of stitches, placing several strands of iodoform gauze at different points to insure drainage and dressed the member with loose gauze dressings wet with warm boric acid solution, held in place with the old fashioned many tailed bandage. I prepared a Hodgen's splint, using strips of bleached cotton flannel as above described, and placed the leg in it. I was unable to apply the plaster strips as is usual on account of the torn condition of the flesh and the poor condition of the circulation. I did, however, place a strip of plaster on each side of the ankle, including the malleoli, and wound the same with a roller, which I fastened to the crossbar of the splint as above directed. This served to steady the limb and while I could not apply any perceptible extension, I hung the splint up in the usual manner, giving very little, if any obliquity to the rope, still with the knee slightly flexed, and the weight of the

Digitized by Google

limb swinging in the basket, served to extend the femur sufficiently for all purposes. Let me mention here, that I believe that with this splint, less force is required to secure the proper extension, than with any other. After the dressing was fully applied, the case gave me very little trouble. The many-tailed bandage and padding under the limb had to be renewed only once, after a few days on account of the drainage. Very little suppuration occurred, and the case went on to a perfect and satisfactory recovery, and in a little less than two months, the lad was out on crutches, and to-day, it would puzzle the best of you to tell which leg was broken, except for the somewhat unsightly scars on the skin. It is now four or five years since the injury. The amount of shortening is almost imperceptible.

CASE 4.—Mrs. R——, over sixty years of age, very much of an invalid, while attempting to use the commode, lost her balance and fell, striking on her right hip, causing a well marked impacted fracture of the neck of the femur, with about an inch and a half flattening of the trochanter, and not more than about one half inch shortening of the limb. Patient was refractory, and because she could move the limb a little, and could not hear the bones grate, would not tolerate any dressing for fracture, for more than forty-eight hours. Finally, on account of the severe pain she endured, she consented to have it dressed, and I placed it in a Hogden splint. I gave her just extension enough to steady the limb, and she went on to a complete and satisfactory recovery. She wore the splint between five and six weeks, and by the end of ten weeks was about the house without crutches. The shortening does not exceed half an inch.

CASE 5.—I was called by a neighboring practitioner last December to assist in dressing a fracture of the upper third of the femur, caused by direct violence, in an old gentleman, Mr. S——, over eighty years of age. I applied Hogden's splint after the manner above described for simple fractures, using a fair amount of extension. The old gentleman, who was suffering severely before the dressing was made. soon expressed a great amount of satisfaction with it, and became

Digitized by Google

free from pain. I am told by the attending physician that he made a marvelously good recovery and was released from the splint at the end of about five weeks after the injury. The doctor tells me that the patient subsequently died from some lung trouble, but the result of the fracture was perfect.

CASE 6.—Mrs. K——, thirty-five years of age, sustained a comminuted fracture of the middle third of the femur, by direct violence. There were two oblique fractures, the middle fragment as near as I could determine, being about two inches in length. I experienced considerable difficulty in adjusting the fragments, and while I could seemingly restore the length of the limb, I could not feel certain as to the adjustment. I dressed the limb with Buck's extension, using weight and pulley, and applied adjusting splints and sand bags to immobilize the limb. At the end of six weeks I made careful tests of the union. It seemed to be satisfactory, so I released the limb. After three days, the patient hurt the limb in the night, and when I saw her next day, I found that it had sprung outward to a very marked degree. I had very little difficulty in springing it back into line, reapplied the extension for six weeks more, after which my patient gradually got up on crutches. The shortening was not more than three-fourths of an inch, but the callus was large and at some points tender. The knee joint gave me a good deal of trouble from stiffness and tenderness. This fracture was sustained on the eighth of July, and on the sixteenth of November following, at which time my patient was getting around fairly well without crutches, she had the misfortune to slip and fall her length on the floor, and sustained another fracture of the same femur. This time there were also two fractures, one of them at the site of the lower former fracture, the other seemed to be in a new place farther up the limb, making the middle fragment, I should judge, measure about four inches. The amount of callus from the former fracture made it difficult to diagnose the case satisfactorily, and the possibility of sarcoma was suggested. I dressed the limb this time with Hodgen's splint,

Digitized by Google

and experienced much less difficulty in securing the adjustment and extension required, and it is safe to say that the amount of attention required of me was very much less than half that required the first time; besides my patient declares that there is no comparison between this and the former dressing. With the former she had a sense of being bound solidly to the bed, while with the latter, she felt free and could enjoy a good deal of change of position without any detriment to the limb. This time I kept her in the dressing nearly twelve weeks, and when I released her I had secured what seemed to be an excellent result. The tenderness and stiffness of the knee as the result of the first extension had not been relieved at the time of the last fracture, and consequently existed without much change after the dressings were finally removed. I gave her an anesthetic and forcibly flexed and extended the knee, and in a little while she had full use of the limb. I desire to note the fact that I have had much less trouble with tender knees after using Hodgen's splint, than any other form of extension.

A point of interest that deserves special mention in this last case, is that where there are two fractures close together in the middle of the femur, the middle fragment is apt to be quite destitute of blood supply, and by its lowered nutrition, must of necessity, make very slow and unsatisfactory repair, and much time must be allowed for the fracture to unite. I am satisfied that I acted unwisely in removing the dressings as early as I did, the first time, notwithstanding the fact that the union seemed good. I would call attention to the danger from too much extension in this class of fractures, for fear of separating the middle fragment from one or the other adjacent fragments, and interfering with the union.

Permit me to call attention also to the fact that the femur, with the patient in the dorsal decubitus, inscribes an arch, the convexity of which is upward, and too much extension, or neglect to properly arrange the foundation upon which the limb rests, is liable to cause a sagging of the center of the femur, and loss of proper contour of the limb. This is important whether Hodgen's splint or any other form of dressing is used.

Digitized by Google

PNEUMONIA

A SHORT REVIEW OF ITS TREATMENT FOR THE LAST FIFTY YEARS

By A. T. Conley, M. D.

Cannon Falls

The prevention and treatment of pneumonia is our greatest problem in medicine today. The twelfth census (Bulletin of August, 1901) places pneumonia at the head of the death column, it having caused the death of 55,296 people during the year 1900, *i. e.*, 191.9 persons died of pneumonia out of every 100,000.

The Bulletin of the Chicago Board of Health states that in that city there were 25,719 deaths from pulmonary tuberculosis between the years 1851 and 1890, and 16,577 deaths from pneumonia during the same period. But in the decade from 1891 to 1901 there were 22,957 deaths from pulmonary tuberculosis, and 25,228 deaths from pneumonia, making an excess of 9 per cent in favor of pneumonia.[1] This report shows that while tuberculosis is decreasing, pneumonia is rapidly increasing. On this point French, using the State of Massachusetts for an example, shows, that in 1860 pneumonia caused 10.82 deaths in each 10,000, and in 1890 it caused 18.83 per 10,000, nearly double.

During the same period consumption fell off more than half. Between the years 1861 and 1871 pneumonia caused but 3 per cent of the deaths from all causes; in the following decade, 5 per cent; the next 6.7 per cent; but in the last decade, from 1891 to 1901, it rose to 10 per cent.[2] N. S. Davis, Jr., places the mortality at the present time in Chicago at 12 per cent[3] and says that each decade since 1850 shows a startling increase, beginning at that time with only 1.66 per cent mortality from all causes. And such well known

Digitized by Google

and careful observers as Wells,[4] Osler,[5] Preble,[6] and many others give pneumonia first place. Osler dubs it, "the Captain of the men of death," and advises all clinical teachers to spend at least half of their time on pneumonia and typhoid fever.[7]

In our own state it appears from Bracken's report[8] that pneumonia is steadily increasing; yet up to the present time tuberculosis leads in the number of deaths, the number of deaths from pneumonia for the first nine months of last year being a little more than 8 per cent.

While we can with a good degree of accuracy get the per cent of deaths from pneumonia compared with the whole mortality, yet it is not so easy to get the per cent of deaths from all who have the disease. It should be classed with contagious diseases and every case reported to the State Board of Health; then we would have something besides hospital reports to guide us. There can be little, if any, doubt that the mortality is much less in general practice than among the hospital patients.

Probably Wells of Chicago is the best authority in this country on this point of the death rates in pneumonia. In a personal letter a few weeks ago, he writes: "My tables now embrace nearly 500,000 cases, with about the same rate of mortality, *i. e.*, about 20 per cent."

Scott[9] of Philadelphia gives the rate in the Pennsylvania Hospital for the decade 1893 to 1903 at 20.4 per cent. Wells is strongly of the opinion that 20 per cent is the general average and has been for a long period of years.[10] He and some others, while admitting the rapid increase of pneumonia, are not ready to admit that it is more fatal. Yet the mortality is often frightful, as witness Dr. Nippert's report in the Northwestern Lancet, May 1, 1902, of 56 deaths, out of 184 from all causes, for the month of March, 1902, in the city of Minneapolis.

From these statistics the following conclusions may be drawn:

1. That pneumonia is the greatest life destroyer.
2. That it is rapidly increasing.

Digitized by Google

3. That with all the study and research and improved methods of treatment, the death-rate is not reduced, but rather increased. This last may seem a little paradoxical,—better treatment and larger death-rate,—yet it is probably true.

There is a large class of practitioners and teachers led by such men as Osler, Preble, and Herrick who frankly state, "We have nothing that will neutralize the poison of the disease." And as Preble puts it, "We know nothing that will actually help the patient, let us therefore be content that we do no harm."[11] With this agnostic opinion I am persuaded that the great mass of practitioners are not in sympathy to-day. Most of us, I take it from the great abundance of medical literature on the subject, still believe in the efficacy of drugs; that they are doing, and have done, excellent service. And that this may appear, we will glance hastily over the treatment of the past half century.

There have been many theories in vogue on which treatments were based, and I believe there is always a modicum of truth in every one of them. Let us enumerate some of them. There was the anti-phlogistic theory, the rational theory, the expectant theory, the antiseptic theory, the diet theory, and many more.

Then as corollaries to these, we had a theory that inflammation killed the patient, then that death began at the heart, and again it was the high temperature, etc. But *now* we *know* that it is the toxemia caused by the micrococcus lanceolatus.

Many of us older men remember in what veneration our preceptors held Watson, an honest, fearless, fascinating writer of the old heroic type. Mackintosh was another.

Fifty years ago all of our standard works were by Englishmen and Scotchmen with American notes. Their treatment was to bleed, bleed, freely and often. Even to the point of syncope. Mackintosh states that he had taken 56 ozs. at one bleeding and 120 ozs. in the first four days. He also states that he has a record where 192 ozs. were taken, this he considers too much. Bleeding was followed by brisk

Digitized by Google

cathartics and that by tartar emetic, usually beginning with one-fourth to one-half gr.; it was rapidly pushed to two grains every hour and often one, two, or three drachms were given in 24 hours.

Then mercury; as Watson tells us: "Mercury arrested the effusion of lymph, which tended to spoil the texture of the lung"—was rapidly pushed to salivation, and then if the patient still showed signs of wanting to live, he was blistered, as Watson puts it "a waist-coat or breast-plate blister." Lastly, milk and beef tea. This was the so-called heroic treatment of pneumonia.

Bennett, who wrote a decade later, and who did much to turn the tide against bleeding, says, by "this energetic, antiphlogistic treatment two out of three were *saved.*"

It is amusing to note the irony and scorn with which Mackintosh refers to the French writers of his day, who were quite generally opposing this heroic blood-letting. Speaking of Laennec he says, "he directs that *only* 8 to 16 ozs. of blood be taken from the arm and even boasts that he has cured pneumonia without bleeding." This Mackintosh calls the "milk and water treatment of the French."

Now, as they began to let up on blood-letting, they pushed the tartar emetic treatment to the front. Bennett says by this treatment four out of five were saved. But by the treatment, which he introduced and which he followed for ten years before reporting, he had saved 25 out of 26. This was better than our friend Van Zandt's, who electrified the country with his carbonate of creasote treatment, who according to Scott and Montgomery's[12] report, saved 19 out of 20, or about five per cent were lost; but Bennett lost less than four per cent.

Bennett called his plan "Treatment directed to further the natural progress of the disease." This was very simple,—mild saline cathartics, mild diuretics and careful feeding, in fact it is all summed up by him in these words: "Further all necessary changes which the exudates must undergo, in order to be freely excreted from the economy." This was swinging the pendulum to the other extreme with

Digitized by Google

a jerk, and for forty years we have not made any startling improvement on this simple treatment.

Another point that Bennett discussed at considerable length, was the entire absence of the chlorides in the urine during an attack of pneumonia. This was scarcely mentioned again as of any account until lately, when it is again taken up and is being carefully studied.

Wells[13] especially calls attention to the importance of using salt in the treatment of pneumonia.

As Watson was a fair representative of the antiphlogistic plan of treatment fifty years ago, and Bennett of the rational plan, forty years ago, so the elder Flint was the best exponent of the expectant plan thirty years ago, and Barthlow fairly represents the same plan twenty years ago and Loomis ten years ago.

Under the first two plans but few different kinds of drugs were used, but with the expectant plan a great variety were brought into use, and as time passed they constantly increased.

Flint followed the usual plan of dividing pneumonia into three distinct stages and then prescribed a different plan of treatment for each stage, recommending some twelve or fifteen different drugs in the five to ten days of the acute stages of the disease.

There has always been a large class of practitioners who believed that pneumonia could be abated or cut short, and even yet it is a bone of contention, but as we glance back over the large list of drugs that at one time or another have had this claim made for them, we are likely to grow skeptical.

Barthlow tells us that Flint once claimed that large doses of quinine, 20 to 40 grain doses, would abort pneumonia. Schwartz of Germany claimed that iodine was a specific for pneumonia, and so at different times veratrum viride, carbonate of ammonia, digitalis, ergot, salicylate of sodium, benzoate of soda, carbonate of creasote, and many others have been heralded throughout the medical press as the long sought specific. Among the latest and the one that

Digitized by Google

has been widely tested and is yet quite favorably spoken of, is the carbonate of creasote. It is the most singular fact that all highly lauded new treatments seem to have about the same effect on the profession that a well advertised new patent medicine has on the laity. At first it seems to be wonderfully effective, then as cooler and conservative men report, it falls into disrepute and is soon forgotten.

While the first 1,100 cases reported as being treated by carbonate of creasote showed only about 5 per cent of deaths, yet Scott and Montgomery[14] report having treated 67 cases in the Pennsylvania Hospital with 10 deaths, or about 15 per cent. This is a fair showing in a hospital where the general average is 20.4 per cent.

For the past two years I have used a mixed treatment, giving, in nearly all cases, salicylate of sodium and carbonate of creasote. In my opinion these two drugs lead the list, though digitalis and strychnine each has a good solid place.

What then have we retained of value from the various treatments of pneumonia for the past fifty years? That blood-letting and blistering and even mercury have a restricted field of usefulness nearly all will admit, though few of us ever use them.

Again, few will find any fault with the rational treatment as practiced by Bennett and his followers; our preceptors had much to say about keeping the "great emunctories" active, just trying to assist nature to eliminate the toxins.

We all believe in the diet treatment up to a certain point. We all believe in what Flint was pleased to term "supportive treatment," and for this purpose he gave alcohol, quinine, digitalis, and strychnine.

Despite statistics, which are not always reliable, most of us believe in the drug treatment of pneumonia, and it is well that we do, at least until a serum or something else is discovered that will act directly on the pneumococcus or the toxemia produced by the coccus; this, with some *definite*

Digitized by Google

plan of prevention, are the two problems that are up to us today for solution. Can we solve them?

BIBLIOGRAPHY

1. Progressive Medicine, Vol. VI, No. 1, page 152.
2. Ibid.
3. Jour. A. M. A., July 5, 1902.
4. Jour. A. M. A., August 19, 1899.
5. Jour. A. M. A., June 15, 1901.
6. Progressive Medicine, Vol. VI, No. 1, page 152.
7. Jour. A. M. A., Vol. XXXVI, No. 24, page 1677.
8. The St. Paul Med. Jour., Vol. VI, No. 1, page 64.
9. Therapeutic Gazette, December 15, 1903, page 794.
10. Jour. A. M. A., Vol. XXXIX, No. 21, page 1308.
11. Progressive Medicine, Vol. VI, No. 1, page 161.
12. Therapeutic Gazette, December 15, 1903, page 794.
13. Jour. A. M. A., June 15, 1902, page 165.
14. Therapeutic Gazette, December 15, 1903, page 795.

FOR DISCUSSION SEE PAGE 81

Digitized by Google

PNEUMONIA: PROBLEMS IN TREATMENT

J. B. McGAUGHEY, M. D.

Winona

Acute lobar, croupous, or fibrinous pneumonia, to which attention will be limited in this paper, owing to its frequent occurrence and large mortality, presents features of peculiar interest to the general practitioner. It has been charged that the number of deaths from this disease for years past has been constantly increasing, and statistics have been furnished in support of this charge. Death reports, however, are proverbially unreliable. Observation affords abundant evidence that deaths which have resulted from tuberculosis, septicemia, alcoholism, and various other affections have been ascribed to pneumonia. There are no well established grounds on which to base a belief that pneumonia is more fatal now than it was forty years ago, and unfortunately proof is wanting to sustain the assertion that modern methods of treatment, or non-treatment, if you please, have been attended with a larger percentage of recoveries.

Pneumonia was formerly regarded as a simple inflammation involving the tissue of the lung or lungs. At the present time it is almost universally believed to be an infectious disease caused by the action of micrococcus lanceolatus, which not only excites the inflammation of the lung, but develops toxines that contribute greatly to the febrile reaction and general disturbance of the system, the effects of which closely resemble those resulting from various septic influences. The first change which takes place in the lung is that of engorgement, speedily followed by the so-called red hepatization, in which the function of the part involved is arrested. This is succeeded by gray hepatization, which in turn in favorable cases gives way to resolution, the stage

Digitized by Google

in which the inflammatory products are absorbed or expelled and the integrity of the lung more or less perfectly restored. It should be borne in mind that frequently, if not usually, in the second and third stages there is a zone, often of considerable extent, outside the hepatized area in which there is active congestion. Here the function of the part is not entirely suspended, but its usefulness is seriously impaired. The various stages are not clearly defined and it is not unusual to find engorgement, red and gray hepatization coexisting in different parts of the same lung.

This brief outline of the changes which take place gives a fair exhibit, for practical purposes, of the conditions found in an uncomplicated case of pneumonia. It may be remarked in passing that though the germ of pneumonia from choice seems to select the tissues of the lungs as the field of its work, it not infrequently invades other structures, in some of which its destructive action is pronounced. Recent investigations have shown that the microbe may be generally, if not always, found in the blood of the patient suffering from pneumonia.

The lay press has recently given wide publication to a statement alleged to have been made by a prominent physician to the effect that there is no established successful treatment of pneumonia. From the comments made, it is clear that this has been interpreted as implying that treatment avails nothing, and the service of the physician is of no value in this disease. Few or none will assert that specific remedies are known. However lamentable it may be, the fact remains that the number of diseases that can be cured by the exhibition of specifics is very small, but in many of those not amenable to remedies of this class, as in pneumonia, the care and advice of the intelligent physician is often most valuable. The treatment is necessarily symptomatic, but this, properly administered, is frequently attended with as much success as follows securing an artery for the arrest of hemorrhage, which, if neglected, would prove fatal. The service of the medical attendant is often

Digitized by Google

beneficial in preventing the adoption of measures and treatment which would result in injury, if not disaster, to the patient.

In this disease, as we have seen, the portion of the lung affected during the second and third stages is functionally useless. Lung tissue beyond this is engorged and capable of performing only a part of its duties. The circulation through the lungs is carried on imperfectly and with difficulty, the supply of oxygen to the blood is diminished, and the general system suffers from poisoning produced by the toxines of the pneumococcus upon which the disease is dependent. These conditions all exist in a typical case, and afford in themselves abundant problems in treatment. Complications frequently occur. Specifics that will meet all requirements may be found, but the discovery can only be made in the future.

Pneumonia is a self-limited disease, and in it, like others of its class, we may expect recovery provided the strength of the patient can be maintained and complications avoided Owing to the physical changes in the lung it is clearly apparent that increased work is placed upon the right side of the heart, that there is more or less venous plethora, and a corresponding reduction in the quantity of blood in the arteries. Attempts to correct this want of balance have been made upon two lines, and each seems to have been attended with a degree of success. In the first method adopted, relief of the venous engorgement is attempted by the abstraction of blood. This measure applied early in sthenic cases has much to commend it. The second seeks to accomplish substantially the same result by reducing the force of the heart's action by the aid of depressents, such as veratrum viride, tartar emetic, or aconite. The value of this course is sustained by the testimony of many observers whose honesty and capability command respect, and whose conclusions should not be dismissed without critical examination. The advocates of each system placed their favorite almost, if not quite, in the rank of specifics, and insisted

Digitized by Google

upon an universality of application which time and experience have condemned.

In order to properly care for a patient suffering from this disease the attending physician should acquaint himself as fully as possible with the history and habits of the affected person, and the stage, as well as the existence, of pneumonia. Each individual requires special study, as the habits of the patient may, and often do, determine the result. Pneumonia in an alcoholic subject is always attended with great danger. The prognosis in the immoderate consumer of beer is even more grave than in those who use the stronger alcoholics to excess. Delirium tremens supervening upon pneumonia often proves fatal. Pneumonia appearing in the course of the former disease generally terminates in death. Plethora, if extreme, adds to the perils of the disorder. The same is true of lesions of the kidneys and organic heart changes, though persons suffering from advanced cardiac disease occasionally make surprising recoveries. Rational treatment will be largely influenced by the stage of the affection. That adapted to the early stage of engorgement would be ill fitted to counteract the depression often witnessed at the crisis.

There are few general rules applicable to the treatment and these pertain to hygiene rather than to the administration of drugs. The room selected for the patient should be large and well ventilated, the temperature should be maintained at about 70 degrees Fahrenheit. Rest should be enjoined, and all unnecessary attendants, visitors, or other oxygen-consumers should be excluded. Free action of the kidneys should be secured, and while drastic cathartics should be avoided proper evacuation of the bowels is of great importance, as tympanites, or distension of the bowels from any cause, impedes respiration. There is also the additional danger of increased constitutional disturbance from auto-infection or intoxication caused by retained excreta. These measures may be, and often are, all that are required in caring for ordinary cases. Many recover with even less attention than is recommended in the foregoing.

Digitized by Google

In considering other means that may be useful in the treatment of this affection, and the indications for their employment, attention will first be directed to blood-letting, including venesection, leeching, and wet cupping. The abuse of this measure in the past affords no excuse for discarding it, provided its use is atteneded with benefit. At the outset of the disease or very early in its progress in a strong subject with hurried labored respiration, rapid bounding pulse, and livid skin, venesection or other abstraction of blood will offen be followed by marked, prompt, and permanent relief. This treatment, of course, is contraindicated in infancy and old age. The early stages having passed there is only one other condition in which its use may be sanctioned. At a later period when the right side of the heart is greatly distended owing to obstruction of the pulmonary circulation, it may result in benefit, though failure here is more probable. The conclusion seems warranted that blood-letting as a therapeutic measure is valuable in a limited number of cases of this disease, and that at the present time it is abused more in its neglect than in its use.

Veratrum viride and aconite are favorite remedies with many physicians, especially in the early stages, and good results have doubtless been obtained from this action. Can the same effects be more safely produced by blood-letting? A satisfactory and convincing answer to this question has not been made. Tartar emetic having been practically discarded calls for no attention.

The position which opium and its derivatives should occupy in the treatment of this affection has elicited much discussion. These agents frequently are well tolerated, and afford rest and relief from pain. The principal objection to their use arises from their well known benumbing influence upon the respiratory centers, and their tendency to arrest the secretions, especially that of the kidneys. Labored, painful respirations of forty or more per minute are preferable to those of twelve or fifteen with freedom from pain and more or less unconsciousness. Rest must be se-

Digitized by Google

cured, and opium in some form occasionally yields the best results, but its administration should be guarded and its effects watched. The employment of these agents as a routine practice cannot be too strongly condemned. Chloral hydrate often affords rest and its use is not attended with as much danger as that of opium.

When there is great lividity and hurried respiration, even though intense pain is present, the use of a hypodermic injection can be defended only on the ground that it ensures an easy death. Few physicians of ten years' experience can truthfully assert that they have never had cause to regret the employment of morphine in this manner.

Expectorants, freely used in the past, are prone to occasion nausea and loss of appetite. In addition to these objections it may be urged that they fail to produce the effects for which they are given.

Heart tonics are often of great value. Digitalis is highly recommended by many practitioners. It is peculiarly adapted to cases in which organic disease of the heart existed before the pneumonic attack.

Strychnia acts favorably upon the heart and upon the respiratory centers. It is especially useful in the later stages when the heart is struggling with its increased burden, and the respiratory centers are becoming torpid. Probably no drug has a more firmly fixed place in the treatment of this disease. It is not claimed that strychnia should be used in all cases or stages, but it should never be withheld when the conditions above mentioned exist.

Alcoholic stimulants at periods of great depression, and collapse are often of great service, provided absorption can take place. In alcoholic subjects their use is imperatively demanded. Their routine employment is objectionable and often injurious.

Aromatic spirits of ammonia, coffee, and camphor are useful adjuvants to, if not substitutes for, alcoholic stimulants.

When the fever is excessive, cold or cool applications may give relief. Fortunately, the high temperature is usu-

Digitized by Google

ally of short duration, Quinine in large doses will lower the temperature for the time being, but its value is at least questionable. Coal-tar preparations are objectionable in almost every particular, and should, in my opinion, be rigidly excluded from the therapeutics of pneumonia.

Local applications, cold or hot, which afford relief to pain, should be employed for this purpose. Enveloping the chest in poultices, oiled silk, or cotton jackets, though sanctioned by custom, seems to disturb the patient, adding to his discomfort without yielding any corresponding benefit.

The intravenous or subcutaneous injection of normal salt solution, notwithstanding the theoretical objections that have been offered, is serviceable in cases in which the action of the kidneys is impaired or arrested. Moderate doses repeated at intervals of several hours seem to produce the best results.

The inhalation of oxygen gas in proper cases has proved useful. Its employment should not be deferred until the patient is moribund.

Serum therapy is now on trial. Encouraging results have been reported, and its future is hopeful.

Nourishment of a bland nutritious character should be given at not too frequent intervals, but it is rarely, if ever, necessary to disturb the rest of the patient for this purpose. The quantity should be somewhat limited in order to avoid overtaxing the digestive powers.

Though many of the problems in the treatment of pneumonia, in the present state of knowledge, remain unsolved, it is believed that by the careful study of each case and close observance of the change of symptoms much can be accomplished in the line of therapeutics. The remedies are few, but these few properly exhibited act favorably upon the circulation, relieve pain, support the system, and often hasten if not ensure recovery.

DISCUSSION

Dr. C. Johnson (Willmar): I just wish to add a word to the very excellent papers which have been read, but to which nothing can be added in the way of excellence. I wish to say in regard to the pathology of the disease, that pneumonia is not an inflamma-

Digitized by Google

tion of the lungs. There is an exudation of the alveolæ, but it is not an inflammation of the lung substance. I further wish to say that it is open to doubt as to whether pneumonia is essentially the intoxication of the toxin of the pneumococcus, or whether it is an intoxication of retained metabolic substances in the system, to-wit: leukomain intoxication. It is an intoxication primarily and prominently, and perhaps more so than any other disease. The prognosis of pneumonia, in my opinion, depends altogether upon the integrity of the system of the patient. If the patient is an alcoholic, nephritic, or is surcharged with adipose tissue or with fatty tissue of the heart, pneumonia is often a dangerous and fatal disease. If the system is sound to the bottom,—if the vital organs are sound, pneumonia is not a dangerous disease. In regard to treatment, it is symptomatic, and it is personal, and it depends altogether upon the judgment of the doctor as to what system of treatment can and ought to be inaugurated, and to what extent it ought to be carried. It is a matter of judgment. The doctor is the engineer that is running the disease; that is, running the machinery; he is adding more fuel and more water as his judgment dictates. He controls the lever of the system that carries the patient through the disease, and I claim there is no disease in which the physician can apply more skillful and conscientious and withal effective treatment in the control of the issue than in pneumonia.

Dr. C. H. Mayo (Rochester): I would like to say a word or two upon pneumonia from the surgeon's point of view. The lung has the largest lymphatic system in proportion to any organ of the body, and any infection touching the lung lymphatics produces a chill. The next thing is the enormous congestion and effusion. The bulk of this must be absorbed through the lymphatic system. Children under the age of puberty have more than an older person, so in children we have enormous absorption and an extreme degree of sickness, and possibly there may be evidences of pneumonia developing only as late as the third or fourth day of sickness because of the activity of the lymphatics. Alcoholism produces a sclerosis of the tissue and a gradual disappearance of the lymphatic system, and in chronic alcoholism this produces an additional danger to middle age or advanced life. If this congestion is extreme it may cause exudations to the pleura, and the pneumoncoccus is possible with empyema as a result. A new system of treatment has been advanced lately by one of the men who has originated so many new things, and that is Dr. Alex. H. Ferguson, of Chicago. He has made clear by observation in a case of mistaken diagnosis where he believed he had a case of empyema present when it was a case of pneumonia, by putting a finger in the lung, then putting in a packing of gauze when he had an enormous escape of serum. He depleted this congestion by opening the

Digitized by Google

lymphatics, with consequent escape of serum. This has happened in three cases. So when congestion is extreme, rather than let these cases go on to death, in the worst cases, there is a possibility of this line of treatment being carried out by draining the lung which the lymphatic system is unable to take care of. Another thing: there may be a question of operations for appendicitis being made upon children in some cases because of this latent condition of pneumonia not being discovered the first few days. In pneumonia of the lower right lobe producing a tenderness over the right rectus, we have the rigidity and tenderness which the best surgeons say we find as indicating operation for appendicitis, and in the case of children we must be on the lookout for pneumonia in the lower right lobe. (Applause.)

DR. J. G. CROSS (Minneapolis): The papers of Drs. Conley and McGaughey have brought out the essential facts in pneumonia. The particular thing that I would emphasize is that pneumonia is a general infection, and not a local infection, for the reason that investigation has shown that there is an infection of the blood stream in many, if not in all, cases. The fever and the condition of the lungs are not in the typical cases the most dangerous conditions in pneumonia, but it is the general toxemia that is most to be feared. Sudden death in pneumonia is not by any means uncommon, and when it occurs it is probable that it is caused more often by degeneracy of the heart muscle than by embolism, as has been suggested. It should not be lost sight of that in the pathological study of pneumonia the pneumococcus of Fränkel is not the only cause, but it may be caused by the streptococcus or other organisms. In many instances these latter cases cannot be told from true pneumococcus lobar pneumonia. They may complicate the other forms. Dr. McGaughey's point that venesection often does good, but that it must be done early, finds corroboration in the pathology of the disease. Early in the disease, before cloudy swelling of the heart takes place, venesection may be done, but if depressants are used in the state in which the heart degenerates, when cloudy swelling of the muscle fibres has taken place, or we have acute myocarditis, then venesection and depressants can only still further weaken the resistance of the patient. The direct action of the bacteria, it seems to me, is the most important feature in pneumonia, and combating of the weakness of the heart is, of course, recognized by every practitioner to be the most important part of treatment. I cannot help feeling in this matter that the physician who feels that he has some particular means by which he has cured or aborted or helped shorten the course of pneumonia, does more good than he who has no faith in any such means, because he observes his cases more carefully, he sees them often, is able to direct treatment to the

Digitized by Google

heart weakness, and really does more good by his very confidence than he who has no faith in what he can do.

DR. W. F. COBB (Lyle): I have been very much interested in the papers just read on the subject of pneumonia, and especially interested in the mode of treatment that has been given. But there is one thing that has been barely touched upon, and that is the use of cold water. I believe in the use of cold water in pneumonia, in certain stages and under certain conditions, just as much as I believe in the use of it in the treatment of typhoid fever. Take a patient with a high temperature, restless and delirious, and put him in a pack of cold water or use baths of cold water, and you will find he will get quicker relief than he would with any kind of an opiate. An opiate is all right in its place. It is indicated in cases of pleuro-pneumonia where there is severe pain, giving relief and comfort to the patient. Cold water has a place and an important one in the treatment of many acute diseases, and in pneumonia I believe it is one of the best agencies we have, when there is restlessness, delirium, and high temperature.

DR. A. T. CONLEY (Essayist): I have only a few words to add. I did not understand Dr. Cobb as to whether he would use cold water as a bath, a pack, or in what form he would use it. I have almost invariably used the ice-pack, and it relieves the pleuritic pain the best of anything I have found. If fever is running high I generally use the ice-pack to the head. I believe the most important point in our consideration of pneumonia is the point only touched upon,—that is prevention. I believe we are agreed that pneumonia is increasing, regardless of the statistics that Dr. McGaughey doubts. I fully believe that pneumonia is *rapidly* increasing, and I believe it is due to contagion. I had this demonstrated in my practice this winter. I have had only ten cases since January, and five of them were in one family. All had pneumonia, one after another. I think when we shall treat pneumonia as we do other contagious diseases, and use more precaution than we are now using or to the same extent or in the same way as in other contagious diseases, we shall probably see it diminish. I believe in the contagious principle, and I believe we must pay more attention to that feature or pneumonia will continue to be our greatest foe.

DR. J. B. MCGAUGHEY (Esayist): In expressing doubt of statistics I did not express it as to the number of cases that exist. It was mainly in regard to deaths. In modern times where a family desires to keep its record as clean as possible from certain diseases, such as consumption and alcoholism, there is a very strong disposition to throw the responsibility upon pneumonia. There is one point that was brought up by Dr. Mayo in connection with symptoms of appendicitis in certain cases of pneumonia in the right

Digitized by Google

lower lobe of the lung in children, of which I wish to speak. That is a very important point. In the first case of the kind I ever saw I fortunately postponed operation for a few hours. At that time I had never had my attention called to that condition, but in those few hours I found a well developed case of pneumonia of the right lower lobe. We often have rigid muscles and vomiting, and the mistake is in many instances excusable.

Digitized by Google

PROSTATECTOMY AND ITS RESULTS

ARCHIBALD MACLAREN, M. D.

St. Paul

The first evidence of hypertrophy of the prostate is, in some cases, an acute attack of retention. I can recall three such cases which were brought on either by exposure to cold or alcoholic excess, in men who had given little or no previous evidence of the disease. One case temporarily recovered following rest in bed, and suprapubic aspiration, which was repeated every twelve hours for two days. He was then lost sight of.

The second case occurred several years ago in the country. His family physician made very persistent and heroic efforts at catheterization, spending several hours at night in a vain attempt to pass a catheter. Toward morning he emptied the bladder by using a trocar above the symphysis. The patient had a severe chill during the night and when I first saw him his temperature was 104 degrees and he looked very badly. This man came to St. Paul on the morning train and I operated upon him the next noon, opened the bladder by a suprapubic section, and put in a drain. The median lobe of the prostate was engorged, edematous, and about the size of a small hen's egg. On account of the man's bad physical condition the prostate was not disturbed. He rapidly failed, developed septic meningitis, and died on the fourth day following, in spite of the bladder drainage. I have always regretted that I did not make a perineal section on this man; perhaps this might have helped by opening up a septic pocket in the perineum.

The third case was like the second in its early history; acute retention, efforts at catheterization, followed by suprapubic aspiration. When he reached the hospital he had a

Digitized by Google

pocket in the prostatic urethra in which the tip of the soft catheter would catch. His bladder was over distended, and he had incontinence with overflow. A large-sized sound and a silver catheter with a prostatic curve easily entered the bladder. Rest in bed with a retention catheter made him more comfortable, but did not enable him to urinate even after several days of drainage. At the end of a week a perineal section opened a prostatic abscess containing fully one and one-half ounces of thick pus. At the end of four days he still could not urinate, so the perineal incision was carried into the bladder, two other small abscesses were opened, and most of a moderately enlarged prostate was enucleated, and the bladder was drained with a soft rubber tube. This man has recovered from the operation, but too recently to determine the ultimate results.

Most prostatics come to operation as the result of bladder infection. They have usually been through with the ordinary palliative course of treatment, and have reached the so-called break-down of "catheter life." What these unfortunate old men need more than anything else is perfect drainage. The Bottini operation occasionally gives this result. The suprapubic operation seldom gives it. The combined, and the perineal operation always gives it, because the perineal section provides a direct down-hill outlet for the urine.

Each of these operations has its legitimate field, but the present conclusion of those surgeons who have tried them all, is, that the great majority of cases needing any operation, are best relieved by perineal prostatectomy.

Suprapubic prostatectomy is a little more dangerous than the perineal operation:

First, on account of the greater danger from hemorrhage from the prostatic plexus of veins.

Second, because of the liability of infection of the space of Retzius from the septic bladder, and the difficulty of draining this portion of the wound.

It is true that one can see the prostate, and make out the variety of deformity through a suprapubic opening, but

Digitized by Google

once the enucleation is started the surgeon must rely almost entirely upon the sense of touch; it is not necessary to see the prostate. Bimanual palpation is the most valuable method of examination in these cases, and the diagnosis of hypertrophy of the prostate can frequently be made by this method alone. At the time of operation a finger passed into the bladder through a perineal section will demonstrate at once the character of the hypertrophy, whether it be an enlargement of the middle or of one or both lateral lobes.

In the operation of perineal prostatectomy a median perineal section is the first step, taking care to avoid the rectum, which has been opened by several of our best surgeons. When the apex of the prostate is reached, a cystotomy on a staff will allow of the exploration of the inside of the bladder, and the recognition of the particular form of prostatic deformity. The capsule of the prostate can now be divided on either side and the hypertrophied prostate or the fibro-adenomatous tumors enucleated. Young's tractor is at times a help, but ordinarily the finger alone is sufficient.

In November, 1903, Geo. M. Phillips published a small hand book giving the experience of 40 American surgeons in prostatic surgery. Of this number Senn, Murphy, Horwitz, McGowan, Ferguson, Ochsner, C. H. Mayo, Martin, Haynes, and Guiteras report 199 perineal prostatectomies with 21 deaths, with the following after-results or complications:

a. Rectal fistulæ	9
b. Secondary hemorrhages	2
c. Urethral fistulæ	6
d. Dribblings of urine	7
e. Stricture	1
f. Calculus	1
g. Epididymitis	5
Total	31

In 13 prostatectomies which I have done there has been one operative death. This man was suffering from a sup-

Digitized by Google

puration of both testicles and an acute cystitis; he was profoundly septic, and in bad physical condition. He was drained and irrigated for several days before his operation. He died on the third day and at the post mortem he was found to be suffering from a double pyelonephritis. This man ought not to have been operated upon for radical removal; possibly a Bottini would have helped to make him more comfortable and to have prolonged his life.

One man died nine months after his operation from a cancer of the pelvis. This case was not known to be malignant until after the prostate was exposed. Then the entire neck and base of the bladder was removed. In spite of this fact the man had good control of his urine until his death.

One man had total incontinence; in his case the prostatic urethra was removed with a hard inflamed prostate. When last heard from he was wearing a urinal, but said he would not go back to his former condition with his constant suffering under any consideration.

The other patients are all living and well, passing urine not oftener than once at night and five times during the day.

The oldest man was 82, at the time of his operation; the youngest 46; the average age was 64. In five of these cases there were stones in the bladder as a result of the prostatic obstruction. In three there has been a secondary stone formation after the operation necessitating a secondary removal. In two of these cases the stones have been easily removed by lithotrity; in one it seemed wiser to make a perineal section.

A continuation of the cystitis seems to have been the cause of the re-formation of the phosphatic stones, and argues in favor of longer drainage. I have been accustomed to remove the perineal soft rubber drainage tube in 10 days' time. In the future I shall be inclined to leave the drain in a few days longer in all cystitis or stone cases.

In one case where two stones were found in the bladder at the time of the prostatectomy, a stone was later found in the right kidney, and removed.

Digitized by Google

One of my patients has had considerable inconvenience from a urethral fistula, which makes it necessary to sit down to urinate; otherwise he is perfectly well.

These 11 living patients are the most satisfactory and the most grateful of any class of surgical patients that I have ever met. The relief which they have received from their constant sufferings, and the delight which they take in being again able to urinate normally, is a great satisfaction to see.

Digitized by Google

OBSERVATIONS DRAWN FROM AN EXPERIENCE OF ELEVEN THOUSAND ANESTHESIAS

ALICE MAGAW

Rochester

In a rather recent article by Dr. E. J. Mellish the field of general anesthesia has been so thoroughly covered that there is little left to be said. As the call is becoming greater for skilled anesthetists, not only from the surgeons but the laity, it is important to become as proficient as possible in the best methods of administering all anesthetics.

I doubt if the ideal anesthetic and ideal method will ever be found, since, after experimenting for about sixty years with methods and drugs, we still have to cling to the first one, ether, as being chief. It is needless to say that ether is, and has been, our preference at St. Mary's Hospital. In 1902 out of 1,852 anesthesias, 1,511 were ether, and in 1903 we gave 2,091 anesthesias, and 1,771 were ether, out of which number 1,234 were given by the writer. Out of the 11,000 anesthesias, I have never been so unfortunate as to have a death directly from the anesthetic, neither have there been many "scares," for in six consecutive years artificial respiration was not resorted to. True, we have had some that will remain with us forever. To the conscientious anesthetist, the profession is a hard one, indeed, as there is but one view, and that is that the administrator of any anesthetic is responsible for the narcosis.

We mean to be exceedingly careful in our selection of an anesthetic with different cases. An acute cold is a contraindication to any anesthetic, more especially ether. The cold invariably becomes worse, and pneumonia during certain seasons of the year is not infrequent; while chronic bronchitis is often improved by an anesthetic. Our pulmonary tubercular cases undergo ether well, as a rule. As Mellish

Digitized by Google

says: "We have pneumonia after local anesthesia as well as after general, so we cannot attribute the trouble solely to the effects of the anesthetic;" and he also says: "The immediate safety during administration is so overwhelmingly in favor of ether that he who holds to the contrary cannot be fully acquainted with the facts, and, after all, there are but few contraindications to the use of ether administered by the 'open method.'"

Believing it narrow to stick to one method and laud one's own highly, we have tried all the methods and anesthetics that have seemed reasonable to us, such as N. O. G. as a preliminary to ether (this method we used in 1,000 cases), or chloroform and ether, etc.; and in all cases we have found that these methods, like all mixed anesthetics, are either unnecessary or harmful. After a fair trial we have returned to ether, drop method, each time, which method we have used largely for about eight years, and written up several times. There have not been many material changes with methods since a previous paper by the writer, in 1901.

Giving an anesthetic outside of the operating-room is unheard of at St. Mary's Hospital, for we believe that it is important to prepare the patient for the surgeon while taking the anesthetic, and we know we can procure a more rapid surgical narcosis with less of the anesthetic. For instance, our abdominal cases (even the Trendelenberg) prepared on the table during the administration of the anesthetic will become relaxed in much less time and with less anesthetic than the gynecological and rectal cases, which cannot be prepared or put in position until after the patient is asleep. We find it safer and more satisfactory in every way, as we are sure that the preparation is an important factor in occupying the attention of the patient, and thus enabling us to hasten narcosis. Another important reason for giving the anesthetic in the operating-room is the fact that there should be as little disturbance of the patient (such as lifting and shifting) as possible, for all this tends to bring on consciousness with struggling and vomiting, and it is impossible for

Digitized by Google

the anesthetizer to continue the administration properly, as he is not positive of the condition of his patient. If prepared on the table, there is no time lost, the surgeon aiming to be ready to operate the instant narcosis is complete. From experience we know the patients can be brought under ether in from three to five minutes, and when ready patients do better if the operation is started at once, as it is more difficult to keep a patient surgically anesthetized and just "ready" after that stage of complete narcosis; and, further, it requires more anesthetic than if the operation was in progress.

Many times the question arises as to the necessity of a reliable sign of complete surgical narcosis, and a great deal of blame is laid upon the anesthetist for not having some positive way of telling when a patient is "ready." If the surgeon is accustomed to the same anesthetist, there is not once in ten times that he need ask if patient is ready. He knows from the deep respiration, color, and relaxation. Failures occur in the very bad peritonitis cases, such as pus tubes, etc., and the conscientious surgeon will be ready to work, if possible, as soon as the narcosis is completed; and his patient will not be allowed to remain under an anesthetic one minute longer than is absolutely necessary. We have never found a single positive sign by which we could tell it subject is ready, believing there are many signs that sometimes guide and often fail. We find that deep respiration, regular breathing, accompanied often by snoring, relaxed jaw, as well as all muscles, are very good signs to rely upon; and it is only the novice who is taking the pulse regularly and touching the conjunctiva (a barbarous habit) to tell if patient is ready, especially when giving ether. In ether anesthesia the pupil does not possess the important significance that it does in chloroform.

There are many surgeons who advocate taking the pulse every five minutes, and recording the same. It is certain that where these things are required the anesthetist must have an assistant, or he is bound to neglect either the anesthetic or his record, for he cannot attend to both properly. If in ether narcosis the patient is kept in as perfect a stage

Digitized by Google

of surgical anesthesia as possible, there is not enough change in the patient's condition to warrant such a course.

If respiration is deep and regular, color normal, jaw in place, quality of pulse good, one may be certain that the rate of pulse and pupils is right, invariably. While we know the importance of carefully watching the patient and the anesthetic, there is a certain class of operations where we find it quite necessary to keep as close watch as possible of every step of the operation. These operations are on the stomach. We give one-eighth of a grain of morphine fifteen or twenty minutes before operation. The patient is given enough anesthetic to produce surgical anesthesia, and as soon as the stomach has been examined and the method of operation decided upon, the anesthetic is withdrawn entirely in the majority of cases, the surgeon being able to continue the entire operation, merely giving more anesthetic for closing the incision. In these cases there are two things we watch closely: the rolling of the eye-balls, as advocated by Frank Simpson as one of the signs of returning consciousness, and swallowing, which is often followed by vomiting, the latter being a call for more anesthetic. Patients are almost conscious many times, but the stomach is not sensitive, and thus we are able to get through the operation and avoid vomiting with a minimum amount of anesthetic. We find no class of cases poorer subjects for anesthesia than stomach cases, and therefore careful watch of every detail is essential. While we give less anesthetic in this class than any other, it is with these cases that we have most of our pneumonias, and in this connection I quote the following from Mellish:

"Lung edema is present during the administration of ether and for several hours after, and it increases the possibility of hypostatic and aspiration pneumonia. Embolic pneumonia occurs independently of the anesthesia. The embolus may be septic, as from thrombosed veins contiguous to infections of the pelvis or lower extremities, or they may be non-septic and produce infarcts which become infected. Many of the pneumonias are probably due to infection from within or to auto-infection. They occur after

Digitized by Google

local anesthesia as well as after general. Gottstein was one of the first (1898) to report lung complications after celiotomy under local anesthesia. From the Breslau clinic of Mikulicz he reported 27 cases of lung complications following 114 celiotomies, while in 119 celiotomies in the same clinic under general anesthesia there were but 7 cases. However, the majority of the graver cases were operated on under local anesthesia."

It has been said that anesthetizers find it difficult to become efficient in the administration of both ether and chloroform. Often one who can give ether well is not as competent in the use of chloroform. While we may never have specialists for each individual anesthetic, it is well to administer all, for often in those hospitals where chloroform is the anesthetic of choice, and the same anesthetists have the privilege of being in constant practice, it is these experts who will be forced to resort to artificial respiration frequently, and occasionally have a death from the drug, and will even then continue its use as the chief anesthetic. It is from such examples that the fanatic on ether takes warning. A very large proportion of deaths from chloroform anesthesia have occurred with minor operations (Hewitt). Death often occurs in chloroform narcosis among the vigorous, as well as the weak patients, while ether is practically safe among the vigorous. It is interesting to note that in "Lyman's collection of anesthesias (393 in number), 30 deaths occurred under chloroform anesthesia induced for the removal of teeth," still dentists as a rule are much in favor of chloroform. We often see a surgeon who has used chloroform for years as the chief anesthetic, but on a later visit we find this same surgeon using ether as the anesthetic of choice. It is needless to ask why the change has been made. Surgeons, as a rule, think they know how to administer chloroform especially, but one finds few good surgeons who are good anesthetists. Chloroform is pleasanter for them, as well as their anesthetizer; and, as mentioned in a previous paper, it requires more skill to administer ether properly, and the surgeon has not the patience to wait for

Digitized by Google

each interne to learn to give ether. Nearly all fatalities on the operating-table due to anesthetics are from chloroform, either mixed with some other anesthetic or straight. Often the anesthetizer will say he has been giving ether mainly, and perhaps he has, but on investigation one will find the chloroform bottle has been disturbed. Public opinion is so much in favor of ether that if accidents in its use do occur, the surgeon will not be blamed as much, and it is to his interest as well as that of the patient to see that his anesthetist becomes proficient in the administration of all anesthetics, especially ether. Aside from acute colds it is surprising how very seldom chloroform is indicated.

As soon as the patient is on the table see that the mouth is free from false teeth or foreign bodies. The hands are fastened loosely at either side of the patient or across the chest with a wide gauze bandage, to prevent the arms from falling over the sharp edges of the table, which so often causes musculospiral paralysis. A thick pad of moistened cotton is placed over the eyes to protect them from the anesthetic. The inhaler used is the improved Esmarch mask with two thicknesses of stockinette (the mask should be boiled and the stockinette changed after each patient). In the administration of ether we commence with the drop method as slowly and as carefully and with as much air as though it were chloroform, continuing until the patient's face is flushed, then add a few layers of surgeon's gauze, and give ether a trifle faster until the patient is asleep. We then remove the gauze, and continue with the same covering as at the start. After complete narcosis it is surprising how little is required to keep the patient in perfect state of surgical anesthesia. If there is any rigidity the patient is not fully etherized. Cutaneous sensibility may be tested by pinching the skin. The indications thus obtained are often more reliable than touching the conjunctiva, the latter being dangerous and often infecting the eye.

Every patient is entitled to the undivided attention of the administrator; and even though it be called "suggestion," at any rate it is well for the anesthetizer to make suggestions

Digitized by Google

that he knows will be pleasing to the particular subject. We have only one rule, and that is the patient is not allowed to talk. Experience has taught us that where there are set rules to follow, such as counting or breathing deeply, it takes longer to compose the subject, and when talking is allowed these cases are more likely to become noisy and boisterous. During the administration of either ether or chloroform prepare the patient for each stage of anesthesia, explaining just how you expect the anesthetic to affect him, and go with him through each stage, giving him your undivided attention. In fact, talk him to sleep, with the addition of as little anesthetic as possible. It is surprising how much comfort and help this little attention is to the majority of cases, and how quickly they submit, doing away with that horrible anxiety and fear characteristic of so many operating-rooms.

As was pointed out in a previous paper by the writer, patients are noisy, grunting, straining, etc., in gall-bladder work, as contact with the diaphragm causes an irregular respiratory rhythm, and this is often mistaken to indicate more anesthetic when more often it is just the contrary. If patients have already reached surgical narcosis, this irregular breathing and grunting does not interfere with the surgeon, and it is wholly unnecessary to increase the anesthetic. Any manipulation of the diaphragm or sphincter muscles will produce the same symptoms in the larger class of cases. In acute peritonitis some patients require almost a dangerous amount of anesthetic to produce relaxation of abdominal rigidity, and in these cases it is very essential for the safety of the patient to proceed slowly with the anesthetic. Respiration is often interfered with, the tongue falling back and depressing the epiglottis. Should any of these symptoms arise during the administration of an anesthetic, all that is needed usually is to bring the lower jaw up and forward, and instead of using tongue forceps, catch the tongue with a piece of gauze, and draw it out and up toward the nose, withdrawing the anesthetic. With the head turned to either side and with an extra piece of gauze one can easily

Digitized by Google

wipe out the mucus in the throat which becomes troublesome.

The general method of giving chloroform is quite like that of ether, giving it with less quantity and with more air, and, as Dr. J. E. Moore advocated, with the regular drop. Chloroform should be given slowly and carefully, the pulse being taken at the facial or temporal arteries. Allow neither patient nor surgeon to hurry you. Stop inhalation as soon as the patient has reached surgical anesthesia, giving just what is needed and not a drop more. Always try to prevent struggling, and when it does occur withdraw the chloroform until the patient is quiet, as struggling will produce deep inhalation—and hence the danger. It is of the greatest importance to watch the respiration, as it may become irregular. When giving chloroform should there be any embarrassment of respiration whatever, it is always considered serious, and should receive immediate attention and a prompt withdrawal of the drug. The pulse often misleads the inexperienced anesthetist. It may become weak just before vomiting, when one would think there was less need of the anesthetic, but it really calls for more, while a thready, intermittent pulse indicates trouble. The eyes may give warning of danger. A rapidly dilated and fixed pupil always indicates danger, while a pupil contracted to normal size, or a little less, indicates surgical anesthesia.

The color of the blood is important, as shown by lips, ears, and nose. One should watch all of these symptoms, and not rely on any one of them. In giving chloroform to children I never feel safe when the child is profoundly asleep, and I try to avoid it, aiming to keep him as nearly as possible in moderate anesthesia. With an unsatisfactory pulse or respiration, give plenty of air. In doing this anesthetists will find little use for strychnine and other drugs often resorted to.

If the patient is properly prepared for anesthesia and the anesthetic is administered properly, by drop method, etc., vomiting is reduced to such insignificance, especially in the operating-room, that it is hardly worthy of mention.

Digitized by Google

At St. Mary's Hospital we give N. O. G. in many short minor operations, but personally I prefer primary ether anesthesia, as it seems much more satisfactory in every way.

There is a great deal yet to be learned about anesthetics and their administration. To the anesthetist there is little, in a financial way, to be hoped for. Is it strange that there are so few who will be faithful to the work long enough to gain sufficient experience in that which all surgeons know to be a most important factor in the operating-room? There is little that is attractive or encouraging unless one cultivates a fondness for the work, and is determined to become as proficient as possible in an art both difficult and important.

DISCUSSION

Dr. J. E. Moore (Minneapolis): I am very glad I was present to hear this paper. It is not often that we meet one with such an extensive experience, and to her knowledge we are ready to bow down. She gives me credit for having brought to this country the drop method. I never made any claim to that credit. In 1885 I went to Germany, and while there I had an extensive experience that I could not have had here. In Minneapolis at that time the cases were put into the patrol wagon and brought to our offices, and we used chloroform by the hatful, but we never killed anybody. I am surprised now, but it was our good fortune. I sometimes had my misgivings, but we got so that the office-boy or anybody would give chloroform. We all know better than that now. I went to Berlin, and I found them using chloroform in an entirely different way. The same bottle of chloroform that I would have used in one busy morning lasted them an entire week. I found they had the Esmarch inhaler and used the chloroform drop by drop. I was so impressed with the method that I brought the message home. I also brought a messenger, the man who administered the chloroform in the hospital where I was. I brought that man with me in 1886, and he remained here nearly a year. He gave my anesthetics, and I was pleased to loan him all about. I wrote this up for publication, and Dr. Mayo says he learned the use of the drop method from that, and it is now the universally adopted method of anyone who wishes to give an anesthetic. The paper upholds me in the position I have maintained for a long time, that the dangers of anesthesia rest more with the administrator than with the anesthetic. Had I Miss Magaw or Dr. Roberts to administer it I would not care what anesthetic was used. I should feel perfectly secure. I would not raise my head because the blood in the wound

Digitized by Google

was turning black. Every surgeon has to watch that with an inexperienced administrator. I have had young men come from Johns Hopkins, where they know nothing about chloroform, and they were prejudiced against the use of chloroform,—they were afraid to be in the room when it was administered, but after several months they used chloroform because they had found it safe. As the writer has said, there are few contra-indications for the use of ether that do not hold in chloroform. I have my patient prepared by giving a hypodermic of strychnia from 1-30 down. I find it helpful in every way, without going into detail. One of the best points made by the writer was, that the patient should not be kept under anesthesia longer than is absolutely necessary. I have more words with my assistants on that point than any other. I hurry them up because I am responsible for my patient, and I do not want him to stay under the influence of the anesthetic longer than is necessary to do my work. I want the patient prepared as far as possible for the operation, and then finished up when I am ready for him. On the other hand, my assistant should have everything ready to use. Dentists have had more deaths from anesthesia than medical men because they give the anesthetic to the patient while in an upright position. It is wrong. The author says that in going about she finds that where chloroform was once given they now give ether. She asks why the change. I have ether given many more times now than I did a year ago, many times more than I did five years ago. In fact, five years ago I did not give it at all. In thirty years I have not had a death by chloroform, but I have had with ether within five years. With the selection of the case that number could be eliminated. The reason I give ether more frequently is that when I am in doubt about a case I give ether because the consensus of opinion is that ether is safer, no matter what the case may be. That impression rests upon the minds of the medical profession. I use ether for that reason, although I like chloroform better.

DR. C. H. MAYO (Rochester): There is one point I wish to speak of, and that is the question of hypnotism as an anesthetic. Very frequently one goes into a large hospital, and finds that the anesthetic is given in an adjoining room by an interne. These patients come to a certain surgeon, as a rule, because they have confidence in him, after he has examined them personally, previous to the operation, and decided what is best to do, they keep confidence in him or they do not stay for the operation. When he sends them away with an interne into an adjoining room to have the anesthetic given it excites their fear, but if he is in the room it gives them confidence because of his presence. The next thing is suggestion. We have done a little of it, but always with anesthesia. When the drunk of anesthesia comes on, or when it passes off, the patient is

Digitized by Google

extremely ready to receive suggestion, and the anesthetizer who attempts to give an anesthetic to a patient and says, "Keep still; don't do that now; keep on breathing," and so on, will find his patient struggling and talking right along. It is just like antagonizing a drunken man. It arouses a spirit of antagonism and he keeps up his struggles. You give an anesthetic in from five to ten minutes and say, "You are all right; your pulse is good; keep right on breathing," and you do not need to say it loud. It is for the ear of the patient alone, and you will have no difficulty in controlling your patient. As far as risk goes, the use of chloroform in cases of acute injuries is comparatively safe. Just as you can use chloroform in obstetrical cases where it is doubly safe. There is one point that has not been mentioned in this connection, and that is the resuscitation of the apparently dead. A patient dies upon the table. If the heart quits first it is practically impossible to resuscitate, but there is another death, and that is where the heart slowly runs down and respiration ceases. We can work over patients when the heart is still going, but the question comes up as to what to do with those who are apparently dead. In those cases about the best thing to do is to open the pericardium and massage the heart through the chest and diaphram forcibly. Practically no case where the heart stops first, has been resuscitated, but where the respiration ceases and the heart is still going, by using the methods of Crile and Keene the patient can sometimes be resuscitated. Keene reports a few recoveries by opening the pericardium. Crile believes in massage and the use of adrenalin to maintain the blood pressure. We know that adrenalin will act in the space of four seconds if we can get it to the blood and maintain massage over the chest, not necessarily opening the pericardium, but without a celiotomy the massage cannot be nearly so good as when you open the pericardium itself, which takes some little time when the patient is apparently dead. (Applause.)

DR. A. E. BENJAMIN (Minneapolis): I think we owe Miss Magaw a debt of gratitude for bringing up this subject once more. "Familiarity breeds contempt," and the more familiar we become with an anesthetic the less danger we attribute to it. This danger needs to be recalled occasionally because of some things that have happened. I have had to witness a few deaths from chloroform anesthesia. Fortunately, however, they were not my patients. I could attribute the deaths to the method of giving it rather than to the anesthetic. In one case in which it was given, it aroused the suspicion of the students of the class. Those who were standing around said the patient would surely die, and their prediction proved true. The confidence of the patient in the physician is of great value. I think Dr. Mayo brought up that point. Those of us who have seen the method employed at St. Mary's hospital have

Digitized by Google

all been surprised at the confidence of the patients, and the ease with which they take the anesthetic. The patient will lie on the same table where the operation is to be performed. Without any struggling the anesthetic is taken, the patient is asleep, and the operation is done in less time than is ordinarily consumed. The fact that the surgeon who is to do the operation is in the room when the anesthetic is given, is of the greatest value, because the patient knows that he is to do the operation. I have had a number of patients ask me, especially clinical cases. "Are you going to do the operation?" That fact has made me believe that it is wrong to bring our patients into the operating-room asleep, but to put them asleep when they know you are going to do the work, and in the operating-room. Another point that I think should be enlarged upon is the work of Dr. Crile. In addition to the use of adrenalin he has employed the pneumatic jacket. I think we should establish in our hospitals some better facilities for restoring patients by increasing blood pressure, and this jacket, as you all know, meets that want.

DR. R. C. DUGAN (Eyota): I want to say just a few words on this subject. Dr. Moore has always been an advocate of chloroform, and he has had marvelous luck with it. Anesthesia can be produced with ether just as well and just as quickly as with chloroform. I think Miss Magaw will put a patient asleep just as quickly with one as with the other. When anybody dies of chloroform he is dead, but when one dies from ether he is frequently not dead,—there is a chance of reviving him.

DR. H. K. READ (Minneapolis): The matter of giving chloroform in the hospitals has been discussed, but there has nothing been said about operations in private houses. The surgeon sees the patient in the bed. It may be a corpulent patient, the husband may be away, and the chances are that a heavy woman must be moved from the bed to the table to be operated on. If the anesthetic is given in the bed, the chances are that the patient will wake up before she is put on the table. I think it is the proper thing to get that patient on the table, and give her the anesthetic in the room where you are going to operate, and thus you will not take the chances of having her wake up while taking her from one room to another. In nine cases out of ten where I am called upon to give an anesthetic I am expected to give it while the patient is in bed. I think it is more practicable for the physician and the patient that the patient should be put on the kitchen or dining-room table, or whatever may be used for the purpose, and be given the anesthetic there. The patient will readily consent if you will tell him it is better for him. This has reference to operations only outside of the hospital.

Digitized by Google

ON CERTAIN NON-DIPHTHERITIC MEMBRANOUS ANGINAS

LOUIS B. WILSON, M. D.

Minneapolis

Since the publication of Loeffler's[1] classical work twenty years ago, in which he separated once for all the pseudo-membranous anginas into the two great groups of those caused by diphtheria bacilli and those caused by organisms other than diphtheria bacilli, the attention of physicians has been directed almost entirely to those of the former group. This is rightfully so because of the much greater importance of the diphtheritic anginas. The latter group, however, should not be entirely neglected and there is a growing conviction that in it are contained certain diseases of which the cases, while not relatively numerous, are relatively important. It is the purpose of this paper to draw attention to some of these types of anginas, certain of which are not infrequently met with in routine examinations for diphtheria, and an interest may be aroused in them and more attention given to their study.

In considering the etiology of these non-diphtheritic anginas it should be premised that in none of them have Koch's postulates been entirely fulfilled. It has not been possible to reproduce in lower animals the exact symptoms as shown in man by inoculation of the organisms recovered from the human cases. The most that can be said of any of them is that the constant association of a certain type of microörganism with a certain type of angina, frequently almost to the entire exclusion of all other microörganisms and so abundant as to make up a large portion of the false membrane, is the principal evidence of their causal relation to the disease. The presence in the throat of healthy

Digitized by Google

persons of the organisms was taken by the older observers as prima facie evidence of their having little or nothing to do with lesions in angina, but while this fact makes more difficult the investigation, it can no longer be considered as disproving their etiological relationship since it has been shown that b. diphtheriæ also is present in a small percentage of the throats of healthy though exposed persons. Certainly it would appear that where two or more cases of pseudo-membranous anginas occur, similar in clinical symptoms and associated with similar organisms present in such numbers as to obscure or exclude others that their etiological relationship should be assumed as a working hypothesis and a careful clinical and bacteriological investigation conducted thereon.

Of the pseudo-membranous anginas which have been hitherto reported, there appear to be five types which have been found constantly associated with five different microörganisms that seem to be worthy of our attention at present. These are (1) those associated with streptococci; (2) those associated with diplococcus pneumoniæ; (3) those associated with Friedlander's bacillus; (4) those associated with the spirillum of Vincent, and (5) those associated with blastomyces.

GROUP I. CASES ASSOCIATED WITH STREPTOCOCCI

Isolated cases of diphtheroid pseudo-membranous anginas associated with streptococci more or less to the exclusion of other microörganisms are being constantly met with. No doubt they are frequently overlooked in routine examinations for b. diphtheriæ, since Loeffler's blood serum, unless it is moist, is not a medium favorable either to the growth of the streptococcus or to its recognition when it does grow. In the routine work in the Minnesota State Board of Health laboratory streptococci have been found present many times in cases by subinoculation of broth medium when their presence had been only suspected from the examination of the Loeffler's serum culture. The clinical symptoms of this type of angina are sufficiently familiar to all, the onset being ordi-

Digitized by Google

narily sudden with chill, slight fever and a white or grayish false membrane on one tonsil. Occasionally, however, the temperature becomes much elevated, the membrane may spread, involving both tonsils and the uvula, prostration become marked, and death may occur in two or three days, or when recovery takes place the convalescence is apt to be very slow. In this latter type of cases, blood cultures where made have not failed to show a streptococcemia. One of the most striking series of cases is that reported by Prudden, who made bacteriological examinations of 24 fatal cases of pseudo-membranous anginas occurring in two hospitals for children in New York. In none was b. diphtheriæ present while streptococci were found. Several epidemics of this variety have been reported also by European observers. One of these reported by Cassedebat[2] occurred among soldiers in a garrison where among two thousand men, one hundred and thirty-four cases developed in a few months. These were shown to be associated almost exclusively with streptococci though occasionally staphylococci and pneumococci were present with the streptococci. Cassedebat thinks that there was abundant evidence in this outbreak to show that the cases were "contagious." Probably the largest epidemic reported is that by Le Damany.[3] This epidemic occurred in the town of Rennes, which had at that time a population of seventy thousand. From December, 1898, to June, 1899, more than three thousand cases occurred. One hundred of these were carefully studied bacteriologically as well as clinically. Streptococci were present almost to the entire exclusion of other organisms and where deaths occurred, streptococci were found in the various organs at autopsy. Le Damany believes that the evidence is quite sufficient in this outbreak to establish the fact of the "contagious" character of the disease. He notes that scarlet fever was present in the city during the period of the epidemic of angina, though he was careful to exclude the possibility of its relationship to those cases which he described as pure streptococcic angina. This coincidence of severe streptococcic anginas with epidemics of scarlet fever has been noted by

Digitized by Google

many observers and is of special interest in relationship to the recent observations of Hektoen[4] and others on the probably constant association of streptococcic septicemias with fatal scarlatinas.

GROUP 2. CASES ASSOCIATED WITH DIPLOCOCCUS PNEUMONIÆ

That the diplococcus pneumoniæ, originally described by Sternberg[5] as a "virulent micrococcus in the salivary secretions of healthy individuals" and by Frankel[6] as the "micrococcus of sputum septicemia" is frequently associated with mild and severe pseudo-membranous anginas there can be no doubt. Like the streptococcus it is frequently missed in routine examinations of cultures on Loeffler's blood serum, since the medium is unfavorable to the development and recognition of the microörganism. The only epidemic of importance is that reported by Vedel[7] in which five cases occurred with three deaths. The clinical symptoms were not unlike those of streptococcic angina or diphtheria and were at first mistaken for the latter until frequent examinations had excluded the diphtheria bacillus as the etiological factor. The relatively high mortality and apparent contagiousness of these cases is interesting in relationship to the recent observations on the invasion of the blood by pneumococci in pneumonias and the apparent transmission of pneumonia by sputum.

GROUP 3. CASES ASSOCIATED WITH FRIEDLANDER'S BACILLUS

Several cases of angina with initial symptoms of dysphagia, temperature 101° to 103°, anorexia, depression, intense local inflammation, and the final formation of a firmly adherent membrane have been reported by various observers, as associated with Friedlander's bacillus. One small epidemic in which the cases presented the above described symptoms is reported by Nicolle and Hebert.[8] All of the five cases were rather severe but none of them were fatal. The bacillus of Friedlander was isolated in pure culture and proved to be virulent on animal inoculation. Mayer[9] reports

Digitized by Google

a case of recrudescent angina due to Friedlander's bacillus. In this group should probably also be placed the interesting case reported by Nicholas[10] of the co-existence of an atypical pseudo-membranous angina with a "new microbe." The case lasted several months, during which time a Friedlander-like bacillus was present on each examination. The organism was proven to be virulent to laboratory experimental animals and it disappeared with the membrane.

The only marked clinical distinction of the pseudo-membranous anginas due to Friedlander's bacillus is the frequent ivory-like hardness of the membrane which has been noted by several observers. In the routine examination of specimens for b. diphtheriæ, Friedlander's bacillus would be most frequently overlooked.

GROUP 4. CASES ASSOCIATED WITH SPIRILLUM OF VINCENT

In 1896 Vincent[11] described 47 cases of "pseudo-membranous hospital gangrene" in the exudate of all of which he found very abundant, sometimes to the exclusion of all other microörganisms, a fusiform bacillus 4 to 8 microns in length and 1 in thickness at the thickest portion of the rod. The organism tapers towards each end. It is usually straight, though it may be curved or irregularly bent. Associated with the bacillus, though not attached to it, are numerous spirals. The bacillus itself is cultivable in acetic acid broths, while the spirals have not been as yet made to reproduce in artificial media. The organisms are stained with most of the anilin dyes, though best by gentian violet. The bacteriological diagnosis can best be made by direct cover-slip preparations though great care must be exercised to exclude the various spirochaetæ which are present in small numbers about the teeth of healthy individuals. Clinically the cases, which occur in young adults, are characterized by an onset with headache, chill, temperature of 101° to 103°, pulse 95 to 100, tonsils congested, swollen and sore, with considerable pain on swallowing. After two or three days a marked ulceration with pitting of the tonsils is observed. The ulcer is covered with a thick, grayish white

Digitized by Google

membrane which is soft and smooth on the surface but somewhat granular beneath. The margins of the ulcer are red and somewhat raised and the exudate is readily removed with a swab, leaving a raw, angry under surface which bleeds when touched. The ulceration does not, as a rule, spread beyond the tonsils and ordinarily but one tonsil is affected. The cervical glands on the affected side are usually greatly swollen and tender. The patient suffers a good deal from the difficulty of swallowing, though the disease is not otherwise serious. The prognosis is good in all cases. Of chief importance in the disease is its differentiation from diphtheria and from syphilitic ulcer.

Vincent[12] followed up his first paper with a report of fourteen more cases in 1898. Bernheim[13] reported about the same time thirty cases. Nicol and Marotte[14] in 1901 made an exhaustive study of the organism and in their published report refer to sixty papers on the subject. In America reports of cases have been published by Mayer[15] and Fisher[16] in the American Journal of the Medical Sciences and by White[17] in the Northwestern Lancet. The case published by White was one of several under observation during the past year and a half in the Bacteriological Laboratories of the University of Minnesota and the Minnesota State Board of Health. Several of these occurred among the internes and nurses in a Minneapolis hospital and there was some clinical evidence of the transmissible nature of the disease. One case occurred in a member of the laboratory staff. This case was rather severe, but yielded readily to carbolic acid swabbing and gargling. It recurred on the same side of the throat in a more severe form after about two months. The fever in this case did not rise above 102° and for the most part was 100° to 100.5°. The cervical adentitis was marked and the pain on swallowing quite severe. The ulcer was confined to the anterior faucial pillar during the first attack and to the tonsil during the second attack. Aside from these cases in Minneapolis specimens have been examined in the State Board of Health laboratory from cases in St. Paul, Duluth, and Mankato.

Digitized by Google

Doubtless the examination of portions of membrane spread thinly, dried and fixed on slides or cover-slips and properly stained would show the presence of this organism in certain of the obscure diphtheroid pseudo-membranous anginas which become all the more puzzling to the clinician when he receives a negative bacteriological diagnosis as to the presence of b. diphtheriæ in culture therefrom.

GROUP 5. CASES ASSOCIATED WITH BLASTOMYCES

Aside from thrush—due to oidium albicans—which sometimes is anginal in character there is considerable evidence that a somewhat important group of anginas is associated with the presence of a blastomycetic organism frequently called "yeast."

One of the earliest observations reported is that of Trorisier and Achalme,[18] who, in 1893, described a case of membranous angina associated with a yeast-like organism. Four years later de Simoni[19] reported five cases of hypertrophic tonsils in which he found blastomyces-like organisms in direct cover-slip preparations. No cultures were made. De Stoecklin,[20] in the routine examination of cultures from five hundred cases of suspected diphtheria, found in thirty-seven cases "thrush-like" organisms which he was able to distinguish from thrush and which he diagnosed as blastomyces. Foulerton[21] in 1899 described a series of careful experiments, cultural and inoculation, with various yeast-like organisms, two of which were isolated from cases of membranous angina. His experiments showed that the yeast-like organism from the angina cases was entirely different from others hitherto described, and he proposed for it the name *Saccharomyces tumefaciens albus.* The term "tumefaciens" was applied because marked tumors developed at the site of inoculation in guinea-pigs. In 1901 Bertarelli and Calamida[22] reported the finding of yeast-like organisms in thirty-two out of thirty-three associated cases of hypertrophied tonsils with false membranes and in nine out of twelve persons who were not sick but who had been associated with the sick individuals. They found the or-

Digitized by Google

ganism in direct cover-slip preparations in but four cultures made from forty-four individuals. Strangely enough they arrived at the conclusion that the finding was probably accidental.

In the routine examinations made in the Minnesota State Board of Health laboratory prior to January, 1903, so-called yeast-like organisms were not infrequently found. No especial attention, however, was paid to these cases. In December, 1902, and January, 1903, several cases of pseudomembranous angina were seen clinically by the writer which showed on bacteriological examination that the membrane was composed almost entirely of these yeast-like organisms. Accordingly a careful record has been kept of all cases coming to the laboratory for diagnosis for diphtheria with the following results: From Jan. 1st, 1903, until June 1st, 1904, yeast-like organisms have been present in one hundred and thirty-six cases which were noted by the reporting physician as showing a membrane in the throat and which did not show b. diphtheriæ present. In some of these cases the yeast-like organisms were associated with streptococci and in others with staphylococci. This series includes twelve cases seen clinically by the writer and from which portions of membrane were examined with the result in all of the finding of blastomyces almost to the complete exclusion of other organisms. These cases presented a clinical history of onset with chill, somewhat rapid rise in temperature, running in two children to 105°, malaise and considerable prostration. The tonsils were congested, swollen and there very rapidly developed a thin, grayish-white membrane. In most of the cases this membrane extended forward from the tonsils over the anterior faucial pillars and in some cases upward, involving the uvula and soft palate. In one instance the membrane extended completely around on both sides beneath the tongue. The membrane is somewhat easily removed though with much more difficulty than is thrush. The underlying surface does not bleed, as a rule, though occasionally bleeding points are observed, especially over the tonsils. The color has not been observed to be yellowish,

Digitized by Google

but pearly white or grayish white. There is considerable cervical adenitis. The membrane does not yield readily to local treatment with silver nitrate, iodine, lactic acid, carbolic acid or formalin. Antitoxin in four thousand unit doses, up to sixteen, twenty and twenty-four thousand units, has been used on four of these cases without any effect on the membrane. Two cases reported to the laboratory in which no other organisms of apparent clinical significance were obtained in any of several cultures therefrom have proven fatal.

Aside from the above one hundred and thirty-six cases in which diphtheria bacilli were not found blastomyces have been found in ninety-seven cases associated with b. diphtheriæ and in nine cases in which the diagnosis as to the presence of b. diphtheriae was reserved on account of insufficient growth in the specimen.

The blastomyces from these cases are from three to eight micra in diameter and both in direct cover-slip preparations from the membrane and on all culture media are spheroids or ovoids never showing any tendency to mycelial formation. Instances of budding are numerous. With all the aniline dyes they stain readily, but unevenly, showing nuclei, vacuoles and chromatophilic granules. No spore-formation has been produced. The organism grows abundantly on the ordinary laboratory media at both room and incubator temperatures, though more readily at the latter. The surface growths on solid media are thick, white and moist. In fluid media the growth sinks to the bottom of the tube after a few days. Glucose and maltose are fermented but without the formation of alcohol. No fermentation occurs in lactose.

SUMMARY AND CONCLUSIONS

1. The non-diphtheritic pseudo-membranous anginas may be divided into several groups, each of which is a more or less distinct clinical entity associated with a species of microörganism either alone or in great preponderance.

2. These non-diphtheritic anginas are important not only because of the necessity of differentiating them from

Digitized by Google

diphtheria, but also because (a) they are frequently transmissible and (b) their treatment should vary according to the microörganism present.

3. Our present imperfect knowledge of these anginas should be added to by carefully made and carefully recorded clinical observations in connection with full bacteriological investigations.

4. In order to determine as early as possible the etiological factor in anginas, direct cover-slip or direct slide preparations from the membrane (as well as cultures on the ordinary diphtheria media) should be made by the physician on his first visit. These should be dried without heating, then fixed by heat, and either stained by the physician or sent to a laboratory with the culture for further examination. This technique should be supplemented wherever possible by cultures on media more suited to the development of non-diphtheria-like microörganisms than is Loeffler's blood serum, such, for instance, as broth, agar, etc., both neutral and acid.

BIBLIOGRAPHY

1. Loeffler.—Untersuchungen über die Bedeutung der Mikroörganismen für die Entstehung der Diphtheritis bei Menschen. Mitth. aus dem K. Gesundheitsamte, 1884, Bd. II, p. 421.

2. Prudden.—Am. Journal Med. Sci. April, 1889.

2a. Cassedebat.—Des Angines coueneuses non diphtheretiques. Arch. gener. de med. 1897, p. 385.

3. Le Damany.—Sur une epidemie d'angines streptococciques. La Presse Medicale, 1899, p. 593.

4. Hektoen.—Recent Investigations of Certain Diseases Associated with Bacteriemia. Northwestern Lancet, March, 1904, Vol. XXIV, p. 79.

5. Sternberg.—A Fatal Form of Septicemia in the Rabbit Produced by the Subcutaneous Injection of Human Saliva. Nat. Bd. of Health Bulletin, 1881.

6. Fraenkel.—Bakteriologische Mittheilungen. Deutsche Med. Wochenschr. 1885, p. 546.

7. Vedel.—Angines a pneumocoques (Erythemateuses et membraneuses). Nouveau Montpellier Med., July, 1898.

8. Nicolle et Herbert.—Contribution a l'etude des angines a

Digitized by Google

fausses membranes. Les angines a bacille de Friedlander. Annales de L'Institut Pasteur. Tome 11, p. 67.

9. Mayer.—Recrudessing Angina due to Friedlander's bacillus. N. Y. Medical Journal, Dec. 22, 1899.

10. Nicolas.—Sur la Coexistence d'une Angine Pseudo-membraneuse atypique et d'un microbe nouveau. Archiv de Med. Experimentale. 1898, p. 75.

11. Vincent.—Sur l'Etiologie et sur les lesions anatomo-pathologiques de la Pourriture D'Hospital. Annales de L'Institut Pasteur. 1896. T. 10, p. 488.

12. Vincent.—Bulletin de la Soc. des Hopitaux. March 11, 1898.

13. Bernheim.—Ueber einen. Bakteriologischen Befund bei Stomatitis ulcerosa. Cent. f. Bakt. 1898, Bd. XXXIII.

14. Niclot and Marotte.—Revue de Medicin. No. 4. April 10, 1901.

15. Mayer.—Am. Journal Med. Sciences, 1902, V. 123, p. 187.

16. Fisher.—Two cases of Ulcerative Angina and Stomatitis Associated with the Fusiform Bacillus and Spirillum of Vincent. Am. Jrnl. Med. Science. 1903, V. 126, p. 438.

17. White.—A case of Ulcerative Angina with the Fusiform Bacillus and Spirillum of Vincent in the Exudate. N. W. Lancet, May 1, 1904, p. 157.

18. Troisier and Achalme.—Sur une Angine Parasitaire causee par une Levure et Clinquement Semblable au Nuguet Arch de Med. Exper. 1893, V. 29.

19. De Simoni.—Ueber das Vorkommen von Blastomyceten in der Hypertrophischen Tonsille. Cent. f. Bakt. 1897, XXII, p. 120.

20. De Stoecklin.—Recherches clinique et experimentalles sur le Role des Levures trouvees dans les Angines Suspectes de Diphtherie. Arch. d. Med. Exper. 1898, XI, p. 1.

21. Foulerton.—On the Pathogenic Action of Blastomycetes. Journal of Pathology and Bacteriology. 1899, VI, p, 37.

22. Bertarelli U. Calamida.—Ueber die Aetiologische Bedeutung der Blastomyceten in den Tonsillen. Cent. f. Bakt. Bd. 30, p. 60.

DISCUSSION

DR. L. F. SCHMAUSS (Mankato): I was very glad to listen to this paper, but I was a little surprised not to hear the diplococcus of meningitis mentioned in connection with these anginas. My attention was first drawn to this while working with this microörganism during my interneship at Cook County Hospital. We had only one incubator, where also the cultures from the contagious

Digitized by Google

wards were kept. In making my cultures I frequently noticed that the tubes from the diphtheria wards contained colonies resembling those of the diplococcus of Weichselbaum, and in examining and differentiating them, I found this organism present a number of times. One striking case will illustrate how these microörganisms are overlooked. A young man was sent to the contagious ward because he complained of sore throat and had been exposed to diphtheria. A culture from the throat showed no diphtheria bacilli, but diplococci (unrecognized) were present. In two days the case developed typical symptoms of meningitis, and was transferred to the medical ward, where he died two days later, a typical case of epidemic cerebro-spinal meningitis. This organism occurred in many cases of cultures I have made from the ordinary sore throats, and those of scarlet fever, tonsillitis, etc., and I hardly ever fail to find it present. It is my opinion that it is the same diplococcus found by Dr. W. J. Class in his cases of scarlet fever. It is impossible morphologically to differentiate between these two organisms. I have often wondered that the diplococcus of meningitis is not more frequently reported in connection with examinations of sputa, anginas, etc. At any rate, I cannot explain why this is so, except that it is not looked for. It is most always mistaken for the streptococcus, the diplococcus of pneumonia, or the staphylococcus. The reason is that it assumes different forms, and we can only differentiate it by putting it through the different culture tests. It can be found if we only look for it. I think it will pay us to more diligently study the diplococcus of meningitis. It is a very widely diffused organism. I find it present in nearly every specimen of sputum I examine for the tubercle-bacillus. When we consider the fact that it causes an inflammation (meningitis) and also pneumonia, then we have reason to assume, and have proof for it, that it will or can also produce an angina, and especially when we know that it reaches the meninges through the nose and throat.

Dr. F. F. Wesbrook (Minneapolis): I think Dr. Wilson has well presented this matter to us, having divided membranous sore throats into two classes, namely, those due to diphtheria bacillus and those due to some other cause. Those not due to diphtheria bacillus he has subdivided into four classes according to what seems to be the causative factor in each. Concerning those factors he has shown the difficulty of complying with Koch's postulates, as has been done for diphtheria bacillus. However, I think this should not be raised as a difficulty, but, rather, that it should stimulate us to a further study of sore throats. We know that many times the condition of the throat is such as to lead to a diagnosis of typical diphtheria, but we fail to find the diphtheria bacillus, and find, instead, certain of these bacteria mentioned by Dr. Wilson. In

Digitized by Google

all such cases it is desirable to make more than one examination, in order first of all, to determine if perhaps B. diphtheriæ may not have been overlooked, and secondly, if it is not present, to determine with accuracy the predominating microbe. Of course, the principal point to be determined is whether diphtheria bacillus is or is not present. It is one of the most important matters in public health with which we have to deal, since the disease sweeps through families, towns, and schools. Furthermore, in this disease we have a specific antitoxin. If conditions demand it, antitoxin should be given without waiting for the laboratory report, since the laboratory report must continue to be in the future, as it has been in the past, a guide to the establishment, maintenance, or release of quarantine, and not as a therapeutic index. It is therefore apparent that membranous sore throat produced by diphtheria bacillus must continue in the future to constitute a class by itself, but everyone interested in medicine, including public health boards, should unite in studying the causes of those conditions which are not due to the diphtheria bacillus. The ordinary culture method employed for the diagnosis of diphtheria is not always suitable for this purpose, but shows simply whether diphtheria bacillus is or is not present, and that, after all, is the main point to be ascertained. Where other organisms are the infective agents it is sometimes necessary to modify these methods. This can be done after the diphtheria bacillus is excluded. Where the streptococcus is suspected as the infective agent the best results are obtained by growing the culture in broth. This can be done from the original serum culture, in the laboratory, if necessary. In the case of spirillum, as has been shown, it is necessary to get a microscopic preparation made directly from the membrane, as the organism does not develop in the ordinary media, either that used for the diagnosis of diphtheria or other ordinary laboratory media. In the case of yeast, however, its presence or absence can be shown by the same means as that used for the ordinary diagnosis of diphtheria. We should not content ourselves with saying that b. diphtheriæ is or is not present, but should endeavor to find out the microörganism which is responsible for the condition, and to perfect methods for showing its presence. These methods should, however, be secondary to that employed for demonstrating the presence or absence of b. diphtheriæ. It must be remembered of these organisms that we have not as yet been able to separate them specifically. For instance, we speak of a streptococcus being present, and usually stop at that point. This may be present in scarlet fever, is frequently present in the normal mouth, but as yet we have not gotten a specific streptococcus which is easily differentiated as is the case for b. diphtheriæ. In other words, we have not yet gotten a specific streptococcus which produces a specific condition as b. diphtheriæ produces the ordinary diphtheria, but we should

Digitized by Google

go on studying these cases, not only from the laboratory point of view, but full clinical data should be accumulated in each instance, and we should study the transmissibility, not only as indicated in the human being by our clinical records, but by animal experimentation. That these conditions have not yet been found to assume the importance of the condition produced by the diphtheria bacillus should not hinder us from pursuing a thorough scientific study, because from a medical point of view they are extremely important even if as yet they do not appear to be of as great important from a public health point of view.

DR. LOUIS B. WILSON (Essayist): It was not the writer's intention to exclude from the list other non-diphtheritic anginas than those mentioned. There are a great many others, among which may be those supposed to be due to diplococcus intracellularis mentioned by Dr. Schmauss. The difficulty is in differentiating this organism from the diplococcus of pneumonia when it acts outside of the meninges, yet I think there can be little doubt that it is concerned occasionally in membranous anginas. There are also a great many other bacteria which are found associated with anginas in isolated cases. The typhoid bacillus has been found in a few well authenticated cases, the colon bacillus in others, and so on. I simply wished to call attention to a few of the more important ones which we meet with here in Minnesota, in order to interest the physicians of the state in making further observations on them.

Digitized by Google

ACUTE INFECTIONS OF THE KNEE-JOINT AND THEIR SURGICAL TREATMENT

JUDD GOODRICH, M. D.

St. Paul

Only recently have the bacteriological findings been utilized as one of the most valuable adjuncts in the differential diagnosis of acute knee-joint infections. A review of the literature impresses one with the fact, that many such cases are operated upon so late in the disease that anchylosis, either partial or complete, is the best result that can be looked for. Any means, then, that will aid in preventing or lessening these disastrous results ought to be generally adopted, and followed as a routine practice.

It has been demonstrated that if cases of acute synovitis or arthitis be subjected to arthrotomy and irrigation within the first twenty-four to forty-eight hours of the disease, in nearly all cases the joint early assumes its natural condition with retention of its normal function.

Since the question of infection has been more carefully studied, the inflammations of so-called idiopathic origin are less frequently met with. The power of many bacteria to withstand the attenuative and destructive action of the body fluids and cellular elements of the blood-stream, serves to explain in many instances the origin of deep-seated inflammations.

The point at which the organism gains access to the body is often undiscoverable, yet usually the tonsil, pharynx, nose, or the intestinal or genital tract furnishes the port of entry. If a septicemia does not ensue, tissues offering the least resistance are attacked, and a local process is the result. A direct contamination of the joint by a penetrating wound or the extension of an inflammation by continuity are the re-

Digitized by Google

maining causal factors in acute inflammations of the knee-joint.

Acute synovitis is usually designated as (1) serous, (2) fibrinous, (3) serofibrinous, or (4) purulent according to the character of the exudate. Blood may be present in any one of these conditions though rarely in such amounts as to justify the term hemorrhagic arthritis, the latter seldom occurring except in injury to the joint or in conjunction with one of the dyscrasias in which hemorrhage is a predominating feature.

The pathological changes in the joint structures are very similar, irrespective of the character of the exudate, providing the disease limits itself to the superficial layers of the lining membrane, the effusion depending for its characteristics upon the relative proportions of serum, fibrin, and white cells thrown out. The synovial membrane has a dark bluish-red appearance, with marked kemotic spots; is often so edematous as to produce a ridge at the junction of membrane and cartilage. In places may be seen marked villous projections. Microscopically the blood vessels appear dilated. There is an extravasation of blood cells, both white and red. The endothelial cells assume a homogeneous appearance within a meshwork of fibrin. The cartilage during this stage of the inflammation remains normal. When the infection first manifests itself in the deeper layers of the synovial membrane, there may develop the typical clinical picture of an acute phlegmon of the joint. The exudate, in place of finding any exit into the joint cavity, is poured into the interstices of the tissues about the joint, giving to that structure a spindle-shaped appearance. The synovial membrane is pronouncely edematous; the villous projections and kemotic spots more conspicuous than in the milder forms; the membrane is of a very dark bluish-red color, its surface covered with a dirty exudate of fibrin; the fluid in the joint cavity in the early stages may be but slight in amount. Microscopically there is seen an excessive infiltration of the entire capsule with leucocytes; the blood vessels are engorged, and so injured at numerous points as to allow

Digitized by Google

of microscopic hemorrhages into the surrounding structures; the fibrinous exudate on the free surface of the synovial membrane merges into a mass of degenerated endothelium; and the pathogenic organism is found throughout the entire thickness of the membrane, and later the capsular structures. Though this form of joint inflammation is, in the beginning, a synovitis, it does not long remain so. Almost from the first it shows a destructive tendency. The pearly luster of the cartilage is soon lost and assumes a reddish or bluish tinge. By its absorption the bone is exposed, and a caries of its articular end ensues; necrotic foci appear in the capsular ligament; bursæ, tendons, and muscle are forced to participate, and unless relief is early obtained either by natural or artificial arthrotomy complete destruction of the joint, loss of the limb, or a fatal termination is highly probable.

It is a fact worthy of comment that most authors treat of gonorrheal infection of the joint as a distinct disease. In view of the fact that its pathology is practically identical with that of other infections, the classification of its various forms is, according to Moynihan, the same; and I believe, as apparently does Dr. Bloodgood, that its treatment should be similar to that adopted in the analogous forms of the other acute infections. I mean to say that an acute arthritis of the phlegmonous form is deserving of the same treatment, whether it be due to the gonococcus or streptococcus.

Could we accept as a criterion the results of Dr. O'Connor in the surgical treatment of twenty cases of acute rheumatic fever there would apparently be little room for doubt that the treatment of this form of acute synovitis is also surgical. He maintains, and supports his arguments by practical demonstration, that if arthrotomy, be it single or multiple, be done early in the disease, convalescence is immediately inaugurated, and the danger of cardiac involvement is thereby very materially lessened. Though clinically this form of arthritis possesses all the stigmata of a microbic infection, there still remains the isolation of the specific organism to make Dr. O'Connor's method of treat-

Digitized by Google

ment appear a rational one. We need far more evidence of the better results obtained by this method of treatment before sanctioning it, yet I believe it worthy of serious reflection. From a consideration of the pathology and bacteriology of acute joint infections it becomes apparent that the ultimate outcome in any given case depends very largely upon the early recognition of the exact condition to be dealt with, followed by prompt surgical interference when indicated. Delay in many instances means impaired function or deformity, and occasionally the loss of a life or limb.

It is to be regretted that radical measures cannot be postponed in this particular field of surgery as has been well shown can be done, often to good advantage, in other parts of the body, particularly the peritoneum.

Because of its superficial location the local signs, combined with the constitutional symptoms, suffice to determine the presence of an acute inflammation of the knee-joint. Further than this, unless the disease be of the phlegmonous type, it is ofttimes exceedingly difficult or impossible to determine by this means alone whether a synovitis is microbic, chemical, or traumatic in origin.

Aspiration, supplemented by a microscopical examination of the exudate, affords the only safe means of determining the appropriate treatment. With the aid of a local anesthetic, an aspirating needle can be introduced into the joint cavity with but slight discomfort to the patient, and in no way adds to the gravity of the situation. I do not wish to convey the impression that cases of synovitis without constitutional disturbances or local symptoms, aside from moderate pain and joint effusion, require aspiration, since the expectant plan of treatment usually suffices to effect an early convalescence; yet even in this class of cases when the effusion is of sufficient amount to distend the capsule, aspiration serves a quadruple purpose: 1. It furnishes a means of positive diagnosis. 2. It relieves the pain. 3. It lessens the possibilities of a subacute or chronic hydrops. 4. By relieving pressure upon blood vessels and lymphatics there follows a rapid absorption of the remaining fluid.

Digitized by Google

The value of repeated leucocyte counts should not be lost sight of as one means of determining the presence of an acute epiphysitis or medullary abscess accompanied by a sterile effusion into the neighboring joint. Bloodgood believes there cannot be a leucocytosis, especially an increasing one, without a pyogenic infection of the joint or bone.

Ironclad rules are not applicable to the treatment of disease, yet in general I believe the following statements with reference to aspiration and arthrotomy of the knee-joint are warranted:

1. If smear preparations reveal no microörganisms in the aspirated fluid, arthrotomy may be postponed for twenty-four hours. If after the lapse of that period the fluid has not re-accumulated and the culture remains sterile radical measures should be superseded by conservative treatment. On the other hand, if after the lapse of twenty-four hours it is found that the fluid has re-accumulated it should be removed a second time for examination, and if still found sterile without amelioration of constitutional symptoms a disease of the bone in close proximity to the joint should be anticipated.

2. If in place of a sterile fluid an infected one be obtained immediate arthrotomy and irrigation should be done.

3. If no organisms are demonstrated by means of the cover-glass preparations, but a positive culture is obtained at the end of twenty-four hours, arthrotomy should then be done, unless the general symptoms are much improved and there has been no re-accumulation of the exudate. In such a case one is justified in awaiting further developments.

Bloodgood says that whenever the presence of the staphylococcus aureus or albus is demonstrable, immediate and strenuous measures are demanded. An infection of the streptococcus, gonococcus, pneumococcus, or typhoid germ permits of delay, yet even in these infections he feels that early arthrotomy is the safer treatment.

The various methods of arthrotomy, drainage, and irrigation have not been considered since the time allotted is

Digitized by Google

not sufficient to give this part of the subject the attention it well deserves.

London Lancet, Nov. 18, 1900.
Progressive Medicine, December, 1900.
Progressive Medicine, December, 1902.
Progressive Medicine, December, 1899.
British Medical Journal, January 13, 1903.
London Lancet, April 25, 1903.
London Lancet, January 24, 1903.
New York Medical Journal, September 15, 1900.
Journal of the A. M. A., March 30, 1901.
Centralbl. f. Chir., No. 16, 1897.
Boston Medical Journal, October 18, 1900.
Park's "Surgery."
Annals of Surgery, Vol. 21, 1895.

DISCUSSION

DR. C. H. MAYO (Rochester): I don't like to see this excellent paper go by without discussion. It is always a timely subject, especially when the paper is to be published, and we can look up these cases. I think there is nothing that appeals to us so seriously as an infection of the knee-joint when it comes into our own hands. I remember I read a paper some ten or twelve years ago upon late infection, after it has passed the period the doctor has described, while the doctor has confined himself to watching only the acute stage; but in those cases where a penetrating wound has inoculated the knee-joint, or in one of those extreme cases where the capsule has been ruptured by accumulated pus—in that kind of cases the old treatment was an amputation, and in most cases it was considered comparatively hard work to save the patient's life. One of the first operations I ever did was to amputate such a leg following a draw-shave injury. Some two weeks after the infection was received the amputation was done to save life. Having seen such cases later, and having a chance to treat them in a hospital, I made a section across the knee, cutting the patella in two, resulting in as much exposure as an amputation would give. I have done that on three children, packing the wound full of gauze, getting free drainage, relieving the tension of the blood vessels, amounting almost practically to an amputation, but leaving all the structures that are important to the leg and that lie behind the joint. Three-fourths of an encircling incision of the knee-joint will still leave the very important structures for the preservation of the leg below, and in all those cases—some of them have gone eight to ten years—they have from one-quarter to three-quarters motion; and in that type of cases

Digitized by Google

where we have inflammation of the capsule following an infection of the blood, or where we have a penetrating wound, such an opening of the joint will serve every purpose of amputation, and save the leg, even if it does become stiff, because a stiff leg is better than an artificial one. Recently that same surgeon who has done so many original things, Dr. Ferguson, has devised a flap covering for opening the side of the joint in such infected injuries by dislocation of the patella and absolute exposure of the whole joint, and it is possible that this operation will be used with the one which I brought forth some years ago and to which Gerster applied the name of the "Mayo" operation.

DR. A. MACLAREN (St. Paul): In these acute cases which Dr. Goodrich so well describes where we have in the past frequently lost the use of the leg, an amputation is not always necessary, as Dr. Mayo has suggested. Early aspiration of the joint and examination of fluid is a wise procedure to follow in every serious case, and is the means of saving many useful limbs. My own experience in this direction is limited to one case, where in an acute osteomyelitis of the tibia, the inflammation of the knee-joint seemed to be the first symptom of infection. The child's temperature ranged from 105° to 107°. Forty-eight hours after the first chill I found a very sick child and a very acutely inflamed joint which was red, fixed, and greatly distended. It seemed as though the child's life would be lost from the severity of the infection, so the joint was freely opened and drained, and we found that it contained turbid fluid and that the joint had been infected from the head of the tibia. The tibia was guttered from end to end, eventually the child recovered, and to-day has as perfect a leg as the other, with absolute free motion. Now, with the more conservative lines of treatment such as we used to follow, in this case we should undoubtedly have lost the use of the joint, if we had not lost the leg. I wish to congratulate the doctor upon his timely paper.

DR. H. B. SWEETSER (Minneapolis): I would like to emphasize the importance of early operation in these cases of epiphysitis before they break in the joint cavity. If they are not operated upon, and they go on to inflammation of the joint, there will be a very marked loss of function, if not requiring amputation. If you operate upon the cases early, you may prevent the loss of the joint and get good results, as Dr. MacLaren has indicated. I think the old plan of letting it alone, and trusting to the Lord, is bad treatment in acute infections of any kind.

DR. A. E. BENJAMIN (Minneapolis): I want to mention a case along this line which is very important in showing the complications which may arise. A man I treated four years ago had been sick three or four days or a week previous to my first visit, with

Digitized by Google

inflammation of the knee-joint. He gave a history of having had osteomyelitis when a boy. It was in the tibia, I think. I ordered him to the hospital, and the second day after he went there I received a telephone message to come immediately. When I arrived I found that the popliteal artery had ruptured. It was necessary to do an immediate operation. The man was in a very bad condition. We amputated above the middle third of the thigh. I think this is one of the most extreme cases I have seen of these inflammations of the knee-joint. I thought this might be of interest in connection with the paper that has been read.

Digitized by Google

THE EFFECT OF THE OPERATIONS FOR UTERINE DISPLACEMENT UPON SUBSEQUENT PREGNANCY

H. P. RITCHIE, M. D.

St. Paul

The numerous methods of surgical relief for displacement of the uterus resolve themselves into three types of operation, viz.:—

First, suspension of the uterus by artificial attachments.

Second, support of the uterus by round ligaments.

Third, suspension of the cervix by use of the deep pelvic fascia known as the utero-sacral ligaments.

Included in the first division are the suspension or fixation operations, either by the vaginal or abdominal route. When performed through the vagina an attachment is made between the anterior face of the uterus and the mucous membrane of the vagina or the wall of the bladder. By laparotomy the fundus is held upright by stitching it to the abdominal peritoneum, the use of the urachus, a strip of the peritoneum or fixation by scarification. Suspension by stitching and the consequent formation of a ligament as suggested synchronously by Kelly and Oldhausen has been most popular in my list of cases.

The round ligaments may be reached by the inguinal canal, vagina, or through the abdomen. Alexander is the name associated with the first operation, although there have been many suggestions as to technique. Procedure through the vagina is typified by Goffe's operation. Intra-abdominally the methods are numerous, such as folding upon themselves (Wylie), bringing up through the abdominal wall and stitching to the fascia (Ferguson), perforating the broad

Digitized by Google

ligament with the round ligament, which is then sewed to the back wall of the uterus, thereby swinging it, as though in a hammock (Webster) and many others.

The deep pelvic fascia has been made use of by both routes, but as yet has not reached the popularity of the preceding methods.

This multiplicity of operations arises from the fact that there is none which is ideal. Experience teaches that none can be used as a routine procedure. The literature proves that while success follows some, others are followed by untoward results.

Among the sequelæ may be noted interference with subsequent pregnancy.

With this fact in view I have, with the permission of Dr. MacLaren, reviewed his operations for displacement of the uterus, and find the number to be 154.

So far as the records show, pregnancy has taken place 25 times in 21 cases, resulting in six miscarriages and no history of dystocia at the time of delivery.

The average age of these 21 cases is 29 years, the oldest being 45, the next oldest 35, and the youngest 22.

The methods employed were as follows:

First, suspension by artificial ligaments—

a. Two buried silk-worm gut sutures..... 4
b. Two buried silk sutures..... 3
c. One surface silk-worm gut suture..... 5
d. Scarification of fundus..... 1

Second, support by round ligaments—

a. Intra-abdominal 4
b. Alexander's 4

Total 21

Six cases miscarried. Two of the six were subsequently safely delivered, and were themselves the only instances in which the operation could be held directly responsible.

A brief statement of these six cases may be interesting:

Case 634 was 45 years old at the time of her operation.

Digitized by Google

She was childless, but had miscarried once. Her operation was a suspension with two buried silk-worm gut sutures and performed in 1896; examination in September, 1900, four years after her operation, showed the uterus retroverted and tender. On Nov. 15, 1901, five years after her operation, she miscarried at four months.

Case 684 was an Alexander operation. Within the two years following her operation she miscarried twice. Both, however, were criminally produced.

Case 1158 was 32 years old at the time of her operation in 1899. She suffered from an adherent appendix and right tubo-ovarian abscess, with four ounces of pus; left tube adherent. Removal of the right side was done, with resection of the left ovary, and suspension of the uterus with round ligaments sewed to the posterior wall. Two years later she had a three months' miscarriage. The wonder is that conception took place.

Case 1226 was 32 years of age. History of a number of miscarriages. Ventral suspension with two fine silk sutures. At examination in October, 1900, a relapse was found to have taken place, leaving the uterus retroverted and very tender. In January, 1901, and again in January, 1902, she miscarried. In this case pregnancy was not obstructed by a ligament.

Case 1253 was 30 years old. Was operated upon in Omaha in 1899. In July, 1900, she miscarried because of obstruction due to fixation of the fundus to the abdominal wall. The retained placenta was instrumentally removed with the greatest difficulty, owing to the restriction of the cervix and the acute angle around which it was necessary to pass in order to reach the placenta site. One year later she became pregnant again. At three months the abdomen was opened, and the fundus found practically fused into the abdominal wall, with an attachment so broad that the eroded surface necessitated inversion. She went on to a perfectly normal confinement.

Case 1398 was 25 years old, married one year, and anxious to conceive. Resection of both ovaries, appendectomy, and suspension was done with one surface silk-worm gut

Digitized by Google

stitch. She became pregnant soon after her operation, and miscarried at four months. Her next pregnancy occurred soon afterward, and proceeded to a normal confinement.

To resume, one case was 50 years old, an age when menstrual irregularities are common and a case which must be viewed with suspicion, although the history is very definite as to the appearance of the membranes. She, in company with case 1226, had suffered a relapse previous to pregnancy. One case had an extensive inflammatory process with pus formation, and although the round ligament was employed her miscarriage was due probably to subsequent adhesions. The miscarriages in the Alexander's were criminally produced.

There were only two cases of the 21 in which the operative results could be held to be obstructive: one of these could never have reached full term; the other did so because the ligament was stretched by the former pregnancy.

The growing uterus will exercise the greatest force upon adhesions, as its growth is gradual. Within the last year I have delivered a patient at full term who had undergone an operation for extra-uterine gestation two years previously. A ventral hernia resulted, which, as pregnancy advanced, became so large that the uterus was easily palpable on all sides. Up to the eighth month the fundus was bent upon itself, and turned toward the site of the operation, evidently thus held by adhesions. The walls of the uterus became so thin that there was constant danger of rupture; yet it finally pulled away, righted itself, and expelled its contents at full term in almost a precipitate labor. This is what must happen and will happen in suspension operations if the attachment is not too broad, and sufficient time has elapsed between the time of operation and that of conception.

The rationale of the double buried suture is the formation of two ligaments, neither one of which has so broad an attachment as to be obstructive to uterine enlargement, while together sufficient support is given to produce the desired surgical result. The presence of the double ligament has produced the serious complication of intestinal obstruc-

Digitized by Google

tion. I have not seen this condition but know of two cases in this city.

When the attachment is made anteriorily on the top curve of the fundus, conditions are much more favorable for full-term pregnancy. But experience has taught that the uterus by its own weight pulled away and assumed its previous state of retro-displacement. In order to obtain the necessary anteversion the attachment is now made posteriorly. If this resulting ligament is broad and strong the only way the uterus may enlarge is by thinning out the posterior wall with the possibility of rupture or miscarriage.

The one surface silk-worm gut stitch, passed through the fundus and abdominal wall, and tied over a piece of gauze, must give the slightest attachment, because there is the least possible disturbance of peritoneal continuity. Yet one of these cases was obstructive, but entirely because of the time of conception following the operation.

In all the other artificial ligament cases, pregnancy went the full term without serious symptoms.

Case 1004 was threatened with premature labor at the eighth month. Her operation was done with two buried silk-worm gut sutures. At this time the ligament was easily demonstrated, and its wall attachment defined by a depression.

I have twice seen ligaments at a subsequent operation: In one case this was fully three inches long, with a silk-worm gut loop in the abdominal wall, the other in the fundus. The uterus lay in the hollow of the sacrum, giving a return of her symptoms. In the other case the same conditions obtained. The ligament was cut, her chronically inflamed appendix removed, and she has been well ever since.

It is fair to presume that during the continual stretching of the period of gestation, the ligament will remain thin, as an adhesion of its structure, although it may contract, will never regain its tone, consequently the operation has been nullified. This presumption is the greatest argument against the employment of the artificial ligaments in women of the child-bearing period of life. Even though relapse

Digitized by Google

does occur following the most satisfactory operation, even though other untoward results follow, there is no question of the efficiency of the operation to obtain the surgical results in the great majority of cases. But when performed upon a patient in whom subsequent pregnancy is possible, and the satisfactory culmination of that period is dependent upon the breadth and strength of attachment, the propinquity of conception to operation, the employment of the artificial ligament in these cases must be gravely questioned.

If the symptoms are such as to demand operative procedures, the surgical result is the primary factor, but in women of the child-bearing period a mobility of the uterus must be obtained which will permit of enlargement to full term. This mobility does not occur in the suspension operations, but is dependent upon events which are more or less uncontrollable and upon the force exercised by the uterus in its growth.

It is much more rational to use a normal structure containing muscle fiber which has the power to contract and still retain its tone.

The shortening of the round ligament through the inguinal canal is ideal when future pregnancy is considered, because there results the least disturbance of pelvic relations. The employment of this operation has its limitations. One case miscarried twice, both times, however, the result of criminal procedures.

The same objection to fixing the round ligaments anteriorly to the fundus holds as in the artificial ligament of the suspension operations.

There are four intra-abdominal round ligament operations. Two of these cases were inflammatory, in which part of the organs were removed, and miscarriage was to be expected from other causes than operative results. Two were of the Webster operation, in which the broad ligaments are perforated and the uterus supported by sewing the round ligaments to the posterior wall. I have delivered both of these cases; one of them was a twin pregnancy in a per-

Digitized by Google

fectly normal confinement. Recent examinations show in each of these cases that the uterus is still in position.

Having in mind the mechanics of retrodisplacement in which the prolapse of the cervix is an important part, the operation upon the uterosacral ligaments should yield the best results. The suggestion to fold these upon themselves is very good, but is very difficult of accomplishment. Working in the depths of the pelvis with the great probability of obtaining only peritoneal adhesions, this does not offer any great advantages over the round ligament. This is certainly the most direct way of preventing retrodisplacement. If the cervix is held firmly the fundus must assume its normal position. Support to the cervix is so important that correction of any laceration of the pelvic floor is as necessary as any of the details of the retrodisplacement operation itself.

CONCLUSIONS

1. Fixation by broad attachment of the uterus to the abdominal wall in a woman of the child-bearing period of life is contradicted without the employment of accessory procedure to prevent subsequent pregnancy. In cases where pregnancy is not to be considered it should be the operation of choice.

2. The objection to the suspension operations lies in the difficulty of obtaining the happy medium of a sufficiently strong attachment to give the surgical result and a ligament so placed as to be non-obstructive to uterine growth with the great probability that the effect of the operation has been nullified by the successful outcome of the pregnancy.

3. The use of the round ligaments in any way suggested offers no obstruction to enlargements of the uterus and the discussion on their use must be limited to the methods best suited to obtain constant support to the uterus.

4. Since experience has shown that the uterus by its own weight will pull away from the artificial ligament when attached anteriorly to the face of the fundus, so should it pull away from the round ligament if so attached.

5. So far, the round ligament sewed to the posterior wall, although the cases are comparatively few, seems to meet the requirements.

FOR DISCUSSION SEE PAGE 135

Digitized by Google

REPORT OF THREE CASES OF PREGNANCY FOLLOWING OPERATION FOR SUSPENSION OF THE UTERUS

J. C. LITZENBERG, M. D.

Minneapolis

As soon as I read the program for this meeting I discovered that Dr. H. P. Ritchie had chosen a subject so nearly akin to the one that I had selected that I thought best not to burden this association with a general discussion of the subject, which I knew he could handle so much better than I. So I have taken the liberty of changing the character of the original paper to a mere report of three cases which formed the foundation of that paper.

It is not the purpose of this paper to discuss the ultimate value of the various operations devised to restore the retroverted uterus, nor to advocate ventral suspension or Alexander's operation as the operation of choice, but simply to report three pregnancies following these operations. My reason for reporting these cases is that I believe every case of pregnancy following any of the various operations for retroversion should be reported by the general practitioner, for he is the one who usually sees them, and the relatively small number of cases reported leads me to believe that many cases of this kind are allowed to go unreported. Dr. Franklin H. Martin in his exhaustive article on "Operative Treatment of Retroversion of the Uterus" was able to report only six pregnancies in 328 cases of ventral suspension, and but few more Alexander's, due most probably to the fact that he was unable to follow the cases. Others may have become pregnant and fallen into the hands of some one who did not realize the importance of each case as an aid to deciding which shall be the operation of choice. There is no

Digitized by Google

question in gynecology over which there is so much controversy as to decide which is the operation of selection in retroversion. I believe we, as general practitioners, can materially aid our confreres, the gynecologists, by reporting every case of pregnancy we see following one of these operations. The reported cases are few enough, either because they are rare or because they are not reported.

The gynecologist may devise various and ingenious operations for this trouble, as indeed he has, yet the supreme test is not merely, has the relief of disagreeable symptoms been attained? but has the uterus been left capable of fulfilling its highest function in pregnancy without dystocia? Unfortunately, the operator may never have the opportunity of observing the real test of his handiwork, but he must depend on us to report cases which were operated upon by him and delivered by us.

I believe one derelict who does not report such cases, and therefore, I submit the following three cases of pregnancy in two women which may be added, for whatever they are worth, to the comparatively small list of reported pregnancies following operation for restoration of the retroverted uterus. All of them, when taken together, may enable our co-workers in gynecology to some day decide the vexatious problem.

CASE I.—Mrs. L—— was well till first pregnant. First gestation was normal; at delivery she suffered a complete tear of the perineum, which was not repaired till she fell into the hands of my late colleague, Dr. R. E. Cutts. At that time she had prolapsed uterus and lacerated cervix and perineum, which Dr. Cutts repaired, and did an Alexander operation. All symptoms disappeared till she became pregnant three years after the operation. She then had prolapsus, which Dr. Cutts corrected with tampons till the uterus ascended into the abdominal cavity. When only a few weeks pregnant there was a marked general anasarca and hydramnios. I was called to assist Dr. Cutts at delivery. She was delivered with forceps of a hydrecephalous

Digitized by Google

child. After a tedious involution the uterus returned to normal and no symptoms of retroversion were noticeable to the patient.

CASE 2.—The same woman. Three years after this child was born, the patient came to my office with a prolapsed uterus; one menstruation had been missed. I found the cervix greatly elongated. I kept her under close observation, and she proved to be pregnant. The uterus was kept up with pessaries and tampons till it was large enough to be pushed above the promontory of the sacrum, and be held there on account of its own size. No other untoward symptoms were noticed till the fifth month, when she had a threatened abortion. Four times during the remainder of her gestation she was so threatened, but rest in bed thwarted the catastrophy. During the last three months of gestation she had pains every ten or fifteen minutes, no bleeding, cervix partially dilated all the time, patient in bed most of the time, pains uncontrollable. She came in labor at eight and one-half months, but after twenty hours forceps were applied, very little progress having been made. The position was R. O. P. She suffered very much with after-pains, the uterus having evidently not enough power to expell the clots, which had to be taken from her with placental forceps and dull curette.

The puerperium was uneventful except that involution was very slow. Patient had to be kept in bed four weeks.

This woman has been examined this week, when I found her womb in normal position, the cervix still being elongated.

The remarkable thing about this case is that after prolapse twice recurring during pregnancy, the uterus should now, eleven weeks after second delivery since operation, be found in normal position.

CASE 3.—Mrs. P——, mother of four children, consulted Dr. R. E. Cutts for prolapsed uterus. He found a lacerated cervix and perineum, which were repaired and ventral suspension performed, when all symptoms disappeared.

Digitized by Google

Four years later she came to me pregnant. The early months of pregnancy were uneventful, but during later months she had continual pain in the scar. Uterus did not ascend above umbilicus till the eighth month, when it suddenly ascended to the normal height of an eight-months pregnant womb. When the uterus ascended the pain decreased, though it was not entirely absent. She had a long labor with breach presentation, L. S. A. She was slightly torn, but the tear was immediately repaired.

This woman was examined this week, and the fundus was found well against the anterior abdominal wall. Evidently, in this case the intended suspension became a fixation, and at the eighth month there was a tearing away of adhesions, which, however, could not have been complete, for the uterus is now in good position, and the woman has no symptoms except when very tired, when she feels a dragging pain, as she felt before the operation, but the womb has never descended since the operation.

These cases are presented for what they are worth, hoping that when added to the sum total they may throw some light on this most fruitful source of controversy.

DISCUSSION

Dr. J. T. Rogers (St. Paul): About five years ago I gave up ventrosuspension of the uterus in all cases except those that had passed the child-bearing period. To-day I believe that in those cases which have passed the menopause there is no operation which compares with that of ventrosuspension in its results. It has not been my misfortune to have had any recurrence following ventrosuspension. Four cases have gone on to pregnancy following the operation, all of them four or five years ago. In two of those cases there was a normal delivery. One of them was pregnant at the time ventrosuspension was made. The operation was done on account of threatened miscarriage. The patient was sent from a distance. She had had one or two miscarriages at three or four months of pregnancy. I opened the abdomen, liberated the adhesions and made the ventrosuspension, and the woman went through her pregnancy without difficulty. Another case, also from the country, became pregnant after ventrosuspension and went through labor without difficulty. Another case had a dystocia, and, following delivery in a neighboring city, became septic, and died either of sepsis

Digitized by Google

or rupture of the uterus. A post mortem was not allowed, and we never discovered the cause of death. In the fourth case of ventrosuspension which was done, the woman became pregnant within a year after the operation. She developed puerpural eclampsia, and I made a rapid delivery of an eight months' child without difficulty. The operation I have followed most frequently in this class of cases has been that of shortening the round ligaments and recently the Webster operation. I believe, however, too many operations are done for retrodisplacement of the uterus. I do not believe it is necessary in a large majority of cases to do any operation in this class of cases. I think at the present time there is an operative craze abroad, and that the gynecologist especially is doing too much in retrodisplacements. (Applause.)

Dr. F. A. Dunsmoor (Minneapolis): I will say just a few words because I disagree with the doctor who has just spoken in regard to the relief of women who suffer from retrodisplacement. I am sure that women do not have that operation made upon themselves just for the fun of the thing. Women who have no symptoms associated with retrodisplacement are not coming to the surgeon or gynecologist to have an operation made, even if it is in fashion with the gynecologist and surgeon. The next question is as to what really does hold the uterus in position. The old belief that the perineum was the foundation for the right position of the uterus is without support (no double play intended), for it has certainly been my experience in examinations to find virgins with retrodisplaced uteri which needed operation, because they caused the trying reflex symptoms which result from the condition of the uterus, such as nervous prostration, pain down the back of the neck, and a general sensation of prolapse. These patients have all the perineal support possible, but the ligaments are at fault. It is on such that ventral suspension should be made. I think the quotation the doctor made about the line of demarcation, whether they were child-bearing or not, should be considered. The method of Dr. Goffe of New York of shortening the ligament without opening the abdomen from above has been proved successful, and in my judgment, from seeing the operation, I am convinced that that is the method of much value to the women who suffer and require operation to be made. Some may consent to this proceeding and refuse a celiotomy. If I were to discuss the doctor's paper I would say that it seemed to me out of the six cases quoted as miscarrying subsequent to the time of operation, there could be no question but that four of them had established the habit, two by reason of induced abortion and one by having aborted four times before having the operation made, and so the operation had nothing to do with causing the miscarriage. We may safely say that if those disturbances come before the fourth month of pregnancy they are not due

Digitized by Google

to the operation itself. That much for the discussion in relation to the paper first read. In regard to the deduction which was drawn by the writer of the second paper, that the change in position in two days of the apparently six months' term to an eight months' term, I think it is quite possible that adhesions may have been present and held the uterus in subnormal position until the sudden change occurred. I will say, while not attempting to dwell upon this part now, it is possible to make a slight ligament to hold the posterior surface of the uterus near the anterior abdominal wall and thus hold the uterus in position even though previously flexed, and not interfere with the free movement of the uterus or with pregnancy afterward, should it ensue.

DR. R. C. DUGAN (Eyota): I am not, strictly speaking, a gynecologist, and I dislike to differ with men who have been my instructors in surgery, but ventral suspension has always appealed to me about as if somebody was fixing up a trap on purpose to catch somebody else in a future operation. If we could make a diagnosis of a diverticulum we would operate almost as soon as we should for chronic appendicitis, but in the ventral suspension we produce the same thing we have with a diverticulum. It is one of the best things I know of to produce more surgery for the next man, and one of the worst things we can do in the field of surgery.

DR. A. E. BENJAMIN (Minneapolis): This is a subject I am very much interested in, and these two papers are quite timely. I think it is about time we had some rules laid down and some ideas in our minds as to how and when to perform an operation upon a displaced uterus. What are the forces that maintain the natural position of the uterus? We know the ligaments and the abdominal wall are to be considered. If we have a prolapse of the other abdominal organs in connection with a displaced uterus no operation is going to cure that complication, but we do not, as a rule, consider the displacement of the other organ. I think a great many operations have been performed in the past without that factor having been considered. A simple retrodisplaced uterus gives very little trouble, but it is when other things supervene, such as a chronic catarrhal endometritis, chronic peritonitis, a doubled-up tube with adherent fimbriæ, a cystic ovary, an adherent ovary, with many other complications—then we have trouble. When we have a uterus displaced, under these circumstances, it is necessary to do a laparotomy. Ventrosuspension is the most feasible operation under most all circumstances, and when we have removed the diseased condition and produced a replacement of the uterus we cure the trouble. We select Alexander's operation when there are no adhesions, in a virgin or a woman liable to bear children. It is because we use the end of the ligament that is weakest. The portion

Digitized by Google

of the ligament we leave is the strongest part of the ligament. The Mann or Webster operation is not the best operation, because it leaves the weakest portion to hold a heavy body. I think when we correct the position of the uterus, after doing an operation on the other abdominal organs, shortening the round ligament would facilitate matters. Ferguson's operation is very good because it uses the weakest portion of the ligament. I have operated on several in this way. Dr. Dunsmoor says a number of them will miscarry and abort because of habit, and a number of them will abort because they wish to. A few who have operations performed did not wish to bear children.

DR. H. P. RITCHIE (Essayist): My intention in writing the paper was to find out in how many cases the ligament of the suspension operation could be considered obstructive. In six cases out of twenty-one miscarriages occurred, but in only two of these six was the ligament obstructive, and these were subsequently delivered. I also looked over the suspension operation to see in how many cases something else was done besides the suspension, and found that in all but seventeen cases other intra-abdominal procedures were necessary. This is an impressive fact, and leads one to believe correct Baldy's recent statement, namely, that in women during married life, when the sexual organs are active, we should find other causes than the retrodisplacement for our operations.

Digitized by Google

THE DIAGNOSIS OF CHRONIC MYOCARDITIS

SOREN P. REES, B. S., M. D.

Minneapolis

SYMPTOMS

Diminished heart power is the one constant condition in chronic myocarditis. It may give rise to no symptoms. In some cases of coronary sclerosis a sudden and immediately fatal blocking of a narrowed coronary artery is the first warning given of changed vessels and degenerated heart muscle. Many such deaths are diagnosed apoplexy. In myocarditis due to other causes, symptoms may be evident only upon careful examination when the heart has been required to do additional work, and, when thus elicited, give rise in different cases, not to one, but to a variety of clinical pictures that easily draw the attention away from the heart, and obscure the true condition.

Breathlessness on slight exertion is the most common initial complaint, and may be the only complaint for years. Mrs. G——, aged 63, had always been very active in home, social, charitable, and church work. She had always been healthy, and her family had been a strong and stout people. She had gained in flesh the last ten years until she weighed over 200 lb. She came under observation April, 1902, suffering from all the symptoms of advanced cardiac insufficiency due to degeneration of the heart muscle. For five years at least previous to this final breakdown, she had suffered from breathlessness on the least extra exertion, but being in good flesh and color, without any bronchial trouble and quite well when quiet, she had not been much alarmed over her condition. The struggle made by this resolute woman for nearly a year against death was one of the most pathetic pictures to be seen at the bedside.

Digitized by Google

A feeling of marked weakness upon slight exertion is an early complaint. The following case illustrates how frequently it is overlooked by the patient until much damage has been done:

Mrs. C——, aged 60, had been always well except for an attack of the ague 32 years ago, and gastritis followed by dysentery 14 years ago. She had noticed for months that on waking mornings she felt strong and energetic, but the slight duties of her home would by eleven o'clock forenoons use up her energy so completely that when the lunch hour came she had no strength or desire to eat. Upon *sitting down,* however, she would, before the meal with finished, feel much better, eat heartily, and, as her usual habit included a nap in the early afternoon, get through the rest of the day very well, only to experience the same fatigue the next day. She consoled herself with the thought that this tired feeling was natural to her age. One afternoon while preparing to go out and make a call with her sister, the exertion of dressing brought about a complete collapse of strength, and gave notice that something unusual was wrong. Examination, December, 1903, showed a slightly enlarged heart, without any murmurs, the sounds clear and weak, pulse 96 to 100 sitting, but on slight exertion 110 to 120; temperature normal; the chest clear; slight trace of albumen in the urine, but, on repeated examinations, no casts. The case has proven a typical, uncomplicated case of chronic myocarditis due to strain and over-exertion of mind and body.

Both of these women were of powerful build, physically and mentally. Both had lived very active lives, had experienced many cares, had been finally quite successful, and in later years acquired ease and wealth. In each case the cause of the disease must have been a constantly overworked and improperly nourished heart.

A sense of uneasiness over the heart region, especially after a full meal and most likely to come on after retiring, or a dull pain over the heart and palpitation on excitement or worry, are often present. A more or less continued dis-

Digitized by Google

comfort in the chest, a slight harassing cough without coryza or temperature, or a persistent neuralgia may be the complaint for which the patient seeks relief. Later symptoms include marked dyspnea, substernal pressure, cough, hepatic stasis, dropsy, scanty urine, feeble and arythmic pulse, blood-tinged sputum, and all the other well known signs of a failing circulation. None of these symptoms are peculiar to myocardial disease. They may accompany a failing circulation due to any cause. Their presence when disease of the endocardium and pericardium, lung, blood, and kidneys can be excluded, should, especially in an elderly person, direct the serious attention to the heart muscle.

PHYSICAL SIGNS

Myocarditis developing gradually in a person about middle life, gives rise to no marked physical signs. General inspection usually reveals a strongly built man of powerful body and mind whose mental work has often exceeded his physical efforts, though both may have been heavily taxed. His appearance is usually that of a good eater and of the man who *does* things. Having always been strong and well, he scoffs at the idea that anything serious ails him in spite of some of the above symptoms. When finally he seeks medical advice his sturdy appearance and his apparent impatience at the thought that he may be ill or in need of careful examinations, often either deceives the physician or makes him yield to a hasty diagnosis of some minor ailment. Instead of getting a very exact and complete history of the man's ancestry, work, habits, and former health, which alone can show an etiological relation between his life and present condition, the few physical signs are passed over as unimportant, and the case allowed to drift on to a serious condition. If carefully scrutinized, these cases in spite of bulky frame and ruddy look give some signs of early decay. The eye lacks penetration, the skin is either dry or of that soft texture peculiar to the aged, the superficial capillaries prominent, the hair prematurely turned, and the very flesh, though bulky, of an ill-nourished appearance.

Digitized by Google

Inspection of the pericardium, unless the left ventricle is much hypertrophied, reveals a weak apex beat, or, more often, because of a thick chest-wall and bulky lung, entirely fails to detect the weak cardiac impulse. Palpation may reveal the impulse when too feeble to be seen, and discover the superficial arteries, radial and temporal, stiffened, if not markedly sclerosed. The liver, generally somewhat enlarged, is smooth, has a sharp edge, and is slightly tender on pressure. Percussion shows some enlargement to the left and upwards giving to the deep cardiac dullness, as Dr. Babcock points out, a quadrilateral outline with rounded corners. In cases where the chest-wall is thick and the lungs bulky the fluoroscope may be of the greatest help in determining the cardiac outline, and often reveals to our surprise a much greater hypertrophy than we expected to find. Auscultation, which gives such brilliant evidence in valvular disease, is very disappointing in its negative testimony. The heart tones are clear, the first sound is soft and weak, the second sound accentuated, and over the aortic valves may have a distinctly ringing character. Later, when the left ventricle fails, the pulmonary may be the more pronounced. A soft mitral systolic murmur of relative insufficiency may later develop at the apex. The pulse is the most direct and trustworthy index to the heart's power. It should be tested, not only with the patient at rest, but after exercise when an increase in its rate will be found out of all proportion to the exertion. The striking physical signs accompanying endocarditis and the decisive evidence gained by auscultation in valvular disease have made us neglect a critical study of the pulse. In myocarditis it is a small abrupt wave. At first strong, regular, and not rapid, except upon exertion, its most noticeable feature is the fact that the volume is not sustained, but the wave quickly recedes from the touch, giving at once the impression of lack of power behind it. As the heart becomes weaker the pulse becomes more rapid, irregular in beat and volume, and intermittent. Some cases have a rapid pulse from the start. The writer has notes of a case in which the pulse at rest

Digitized by Google

was constantly between 160 and 180. She was a large, fleshy woman, apparently well except for shortness of breath on exertion and a consciousness of her heart action. A severe fright twelve years ago when seeing her child killed in a runaway was supposed to be the nervous shock that initiated the tachycardia. She was under observation for five years, and finally died from cancer of the breast, but her pulse, except when she was flat in bed, was invariably very rapid. In a study of the pulse the sphygmograph should give early and valuable information.

The urine may be normal. Usually a trace of albumen and a few hyaline or granular casts are found. On many occasions we have noticed that as the heart acted poorly, the urine would become scanty; albumen, many granular, a few hyaline casts, and much epithelial debris would appear, all of which would entirely disappear again for a time under successful cardiac stimulation.

The blood is often not much impoverished. Cases due to vascular changes or an interstitial nephritis are poor in hemoglobin. One case is remembered where free purgation and sweating having been used to overcome visceral engorgement and dropsy, the hemoglobin registered 105° (v. Fleischl).

The case history must at times decide the diagnosis. It should not only reveal the ordinary data, such as a family tendency towards early degeneration of important organs, and record any former illness as to kind, duration, severity, and the nature of the recovery, and give an exact statement of the symptoms, how and in what way they appeared and to what extent troublesome, but it should go minutely into the daily habits and routine life of the patient. How and what and when he eats and drinks, when and how hard he works, how much recreation, of what nature and where taken (whether outdoors or in a stuffy and smoky club-room), are fit subjects for investigation. Just how much tobacco is used and in what form, whether anxiety or mental worry is or has been present, what excesses, if any, have been indulged in—these are all questions that must not be passed over.

Digitized by Google

DIAGNOSIS

The diagnosis is therefore not made upon any one symptom or physical sign, but upon a careful study of the case as a whole viewed in the light of a full and minute case history. The broad principles of physiological pathology must determine our conclusions, and not, what is often more easy and now more common, the identification of the presence of a certain bacterium. Of special value in arriving at a conclusion are the following:

1. The age is a factor so important that it can be truly stated that at or after middle life the greatest number of people who suffer from heart trouble are not victims of valvular, but of myocardial, disease.

2. The sex includes more males on account of the habits and hardships peculiar to men.

3. The social condition reveals more men of affairs who are high livers and lead sedentary lives. If these formerly lived an active out-of-door life the influence of the later sedentary habits seem all the more injurious.

4. Of habits the constant use of alcohol, tobacco, and rich food are conspicuous. The evil effect of alcohol on the heart muscle is evident when we recall how often in a chronic alcoholic, apparently strong, a slight illness, such as a mild bronchitis, pleurisy, influenza, or rheumatism, brings the patient shortly into a very serious condition. It is strikingly illustrated by the statement of a careful physician who recently said that of all the cases of pneumonia in alcoholics that had come under his care at the City Hospital he remembered only a single case that had recovered. An excess of tobacco or the habit of eating too much rich food is second only to alcohol in its injurious effects.

5. The occupation may reveal a life of special hardships or of great physical exertions, or show the patient exposed to some specific poison peculiarly injurious to the heart.

6. Some former illness may be responsible for the state of the heart muscle. A severe simple anemia, even in a young girl, may bring about a serious fatty change in the

Digitized by Google

cardiac muscle fibres. Any acute infection, typhoid, pneumonia, smallpox, diphtheria, scarlet fever, measles, may by its toxines so affect the heart muscle that unless sufficient opportunity is given for complete repair a chronic degenerative change takes place later. Pericarditis has, in the writer's experience, been a grave cause. A fatal case seen last September made a deep impression. The man was about 35, of medium weight and build, and a Scandinavian. He complained of weakness and difficult breathing, a severe harassing cough, and much thick, tenacious expectoration. The pulse was very irregular, intermittent, and at times weak. Cardiac and bronchial stimulants were given with confidence of getting prompt benefit, for the lungs were not consolidated, the heart apparently free from valvular disease or great dilatation, and there was no fever. In spite of good care extending over two weeks, the patient made no improvement, and quite unexpectedly sank away on account of heart weakness. This man gave a history of pleuropneumonia and pericarditis with effusion some weeks previously from which he had apparently recovered, but with a heart muscle so crippled that repair was impossible.

The diagnosis to be complete should thus include, as far as possible, the probable cause of the change. It is impossible to often accurately determine the character or extent of the anatomical changes except in cases where a loose and corpulent body suggests a fatty degeneration, or a general hardening of the arteries with shrinking kidneys and mental symptoms point to a fibroid condition in the heart. *Clinically,* however, it should be possible to group cases in one of a few divisions according to the etiological factor as determined by the case history, and thus ascertain whether an acute infection, a specific poison, a change in the vascular system, mental strain and worry, or some other factor is the cause of the myocardial change. In such a way only will the diagnosis be effectual in pointing out the prognosis and determining the treatment.

FOR DISCUSSION SEE PAGE 151

Digitized by Google

PROGNOSIS AND TREATMENT OF CHRONIC MYOCARDITIS

J. W. BELL, M. D.

Minneapolis

Chronic myocarditis is a disease insidious in its onset, latent in its evolution, and erratic in its clinical course, causing sooner or later the death of the patient.

PROGNOSIS

The prognosis in a given case, as to duration of life, will depend on the cause of the disease, and the state of the heart muscle, influenced favorably or unfavorably by the age, habits, temperament, and general nutrition of the patient. The question of the probable duration of the disease, equivalent in this instance to the duration of life, is one the medical attendant is in every case obliged to answer or attempt to answer. While the disease is progressive in its course, and invariably fatal, much may be accomplished by judicious management to prolong life and defer the evil day.

In forming a prognosis the following facts should be carefully considered: age, habits, temperament, general nutrition, condition of the vessels, kidneys, and heart, especially the condition of the latter as indicated by the location, extent, and character of the palpable impulse, area of deep cardiac dullness, and character of heart sounds. We should also carefully consider the condition of the pulse, presence and extent of dropsy, frequency and severity of attacks of palpitation and dyspnea, presence of precordial distress, and, lastly, evidence of interference with the blood supply to the heart as indicated by one or more attacks of angina pectoris.

The younger the patient the more exemplary his habits,

Digitized by Google

and the better his general nutrition, the more favorable the prognosis; on the other hand, the farther the individual is beyond the equator of life, the more questionable his habits, and the more faulty his digestive system, the more unfavorable the prognosis. As long as the heart muscle receives sufficient nourishment it remains in position to continue the unequal contest, but the moment its blood supply is impaired through coronary disease, that moment life becomes uncertain. Briefly, prognosis depends upon the relation existing between the demands made upon the heart and its ability to meet them; hence it is largely a question of myocardial nutrition.

TREATMENT

For the purpose of treatment we divide the clinical course of the disease into two periods or stages: (1) the period of progressive and often slow development of myocardial weakness, accompanied by breathlessness, precordial distress, irregular pulse, and occasional attacks of palpitation, and (2) the period of advanced myocardial weakness, accompanied by symptoms of pronounced cardiac insufficiency, such as constant precordial distress, dyspnea, cardiac asthma, Cheyne-Stokes breathing, frequent attacks of palpitation, marked irregularity of pulse, angina, tachycardia, bradycardia, Stokes-Adams quartet of symptoms, and later all the symptoms of general venous engorgement.

Each individual case must be carefully studied as regards the existence of any constitutional vice, the exact state of the heart and arteries, the character of the pulse, and the digestive powers. Having then a clear conception of the patient's condition it should be carefully and frankly explained to him, unless there be some special reason to the contrary, when it should be explained to a friend or relative.

If called to treat a case in the first period or stage our first endeavor should be to discover and remove every possible cause of cardiac irritation and embarrassment. Our second endeavor should be to so regulate the diet, exercise, and habits of the individual as to bring the general nutrition, as well as that of the heart muscle, up to the highest point,

Digitized by Google

and to maintain it. For this purpose, in addition to hygienic and dietetic measures, general tonic treatment, consisting, according to indications, of strychnia, arsenic, and iron, is indicated. The question of exercise must be carefully considered in relation to each individual case, and with special reference to the condition of the myocardium. In early cases where the pathologic changes are not far advanced, especially in obese persons where fatty infiltration, rather than degeneration, is the rule, graduated exercise is especially beneficial. However, in the large majority of cases of chronic myocarditis absolute rest in the recumbent position will be found necessary for a few weeks at least. The patient's habits should be carefully regulated; tobacco, alcohol, coffee, and tea should be interdicted. He should be urged to lead a quiet, orderly, and temperate life, as free from worry and excitement as is compatible with our modern civilization. The diet must be adapted to the digestive powers and the wants of the system. All rich, bulky foods, especially those inclined to induce flatulence, should be excluded. The patient should be advised to sleep and eat regularly, using three meals daily, composed of concentrated, non-fermentative, nutritious food suited to the requirements of his special case; the midday meal should always be the principal one; no solid food between meals; little or no fluid with meals. Patients should be urged to sleep at least ten hours out of every twenty-four, with a midday rest of at least one or two hours following the midday meal, in order to minimize the daily labor of the heart, the latter injunction should be rigidly followed the remainder of the patient's life. It is attention to the little things of eating, sleeping, drinking, and doing that makes success possible in dealing with this condition.

In order to intelligently advise and treat an individual suffering from chronic myocarditis, we must inquire carefully into his heredity, as well as his past and present condition, also have clearly in mind the etiological factors responsible for the varied pathologic changes present in chronic myocarditis. The fat, flabby man of sedentary

Digitized by Google

habits suffering from fatty infiltration of the heart must, of necessity, receive different advice and treatment from that indicated in the thin, spare, ill-nourished individual. In the management of myocardial insufficiency we rely largely on rest, graduated exercise, massage, resisted movements, saline carbonated baths, tonics, and saline cathartics. In suitable cases saline baths of a proper temperature aid very materially in restoring myocardial tone.

Before instituting a course of baths, advanced arterial fibrosis and aneurism must be excluded, also advanced cardiac insufficiency with dropsy. It is well to begin with a bath of ten minutes duration, the bath to consist of fifty gallons of water at a temperature of 98° gradually lowered to 94°. The water should contain 1 per cent of sodium chloride and 0.1 per cent of calcium chloride. The temperature of the second bath is gradually lowered to 88°, and thereafter all baths should be given at that temperature. The percentage of chlorides should be gradually increased, sodium to 3 per cent and calcium to 1 per cent, and the bath prolonged to twenty minutes. As a rule, carbonic acid should be added to the bath by the tenth day. The baths, if beneficial, should render the pulse slower, fuller, and more regular; improve the character of the impulse; and decrease the area of deep cardiac dullness.

The course of baths should extend over a period of five or six weeks, omitting the bath every fourth day. The principle underlying the baths is that the percentage of salines be increased, temperature lowered, and duration lengthened. I consider it safer, and equally beneficial, to follow the plan suggested above, of gradually lowering the temperature of the water during the first few baths until the patient becomes accustomed to the cool bath.

Unfortunately, these patients do not present themselves for treatment until pronounced weakening of the myocardium has occurred, as shown by marked venous and visceral congestion, indicating the second or advanced stage of the disease. We are then confronted with the problem of medicating a weak and degenerated heart muscle in an

Digitized by Google

individual having, by virtue of his age, in the majority of cases, suffered certain vascular, as well as extravascular, changes, causing increased intra-arterial and cardiac blood pressure. In advanced cases absolute rest in bed must be enjoined for a variable period, the length of time depending entirely on the indications present in that particular case. The question of the amount of rest indicated or required in a given case of myocardial insufficiency, demands the most careful consideration on the part of the physician, in order to avert disaster.

The treatment of advanced cases of myocardial insufficiency, associated with pronounced venous and visceral engorgement, with evidence of beginning anasarca, is wholly palliative, directed to the relief of symptoms and associated complications. For the relief of the more or less constant high arterial tension present in many cases we rely mainly on the iodids and nitrites. I have found the iodid of sodium in from three to five grain doses, three or four times daily, the most satisfactory agent in dilating the arterioles, thus reducing intra-arterial pressure. The action of the iodids is much more prolonged than the nitrites, hence the iodids are to be preferred.

Strychnia, digitalis, strophanthus, spartein, and caffein render most excellent service in giving tone to the weakened heart muscle, when combined with a vasodilator, like soda iodid, nitroglycerin, erythol, or sodium nitrite.

I desire to emphasize the value of long-continued, very small doses of digitalis, combined with a vasodilator, in myocardial disease associated with arterial fibrosis or chronic renal disease. In case the stomach is irritable, the urine scanty, and the arterial tension low, it may be given with good results by the rectum. The morning saline, preferably magnesia sulphate, given one hour before breakfast, aided by an occasional bedtime dose of calomel, adds much to the comfort of the patient, and aids greatly in delaying the evil presence of pronounced venous engorgement and anasarca.

In case angina pectoris occurs the attack should be met promptly by the inhalation of amyl nitrite and the subcu-

Digitized by Google

taneous use of morphia and nitroglycerin. In view of the intense suffering associated with angina, the attendant should instruct the nurse, in case of an attack, to immediately administer a generous dose of morphia and nitroglycerin subcutaneously.

In the management of pronounced myocardial insufficiency, with its attendant evils, no method of medication has proved so satisfactory in my hands as that of subcutaneous medication, assisted by rest, massage, baths, and saline cathartics. Our resources are sorely tried in the treatment of this disease, a veritable struggle with mortality, often extending over a period of years, for it should be constantly borne in mind that we are dealing with an incurable condition.

In conclusion, I desire to emphasize the necessity for prompt recognition of the early symptoms of myocardial weakness, believing that no practitioner is justified in ignoring or passing as unworthy of therapeutic attention the breathlessness, precordial distress, and irregular pulse so frequently encountered after midlife.

DISCUSSION

DR. A. W. STINCHFIELD (Rochester): In the study of heart diseases our chief time has been put upon the endocardium. The myocardium has been neglected, but there is very likely to come a time in the history of the most of cardiac diseases when the question concerns the myocardium, and I think this is always appropriate, as Dr. Bell has told us. The ground has been so thoroughly gone over that there does not seem to be much left for discussion, except perhaps to emphasize some of the points brought out. I would call attention to the fact that in perhaps many cases of chronic myocarditis we have an introductory acute myocarditis. The circumscribed acute myocarditis is fatal so often that it reaches a chronic condition only in a very few cases. Acute diffuse myocarditis is present perhaps in a great many more cases than has been recognized. I think it was Rhomberg who found evidence of acute diffuse myocarditis in almost all of his post-mortem examinations in diphtheria, scarlet fever, and often in typhoid fever and other infective troubles. Acute myocarditis almost always goes on to a chronic condition. It changes the fibres of the muscles, so that it impairs their usefulness ever afterwards. In my own cases where I have made a diagnosis of chronic myocarditis I must say I have

Digitized by Google

been able to trace the history back in a very large percentage, except in the degenerative cases, to some acute infectious disease. Influenza has been fruitful in the production of this trouble; that is, it has seemed so to me. Endocarditis was mentioned as a cause, and I think it is a very fruitful one. I have learned somewhere, I do not remember where, that in myocarditis and endocarditis it was almost always the fact that the muscle was more or less affected, in many cases fully one-third the thickness of the muscle, which, of course, renders it weak for all time. I was very much gratified in the description of cases occurring in advanced life which were called to our attention so nicely, and I think it is of a great deal of importance to trace the history of these cases back very carefully. Often the diagnosis depends largely upon the early history for evidence, and we have coming into our offices very often cases of sickness in which we find cardiac affection, and there has been a history of myocarditis, a weakness for a long time, and the usefulness of the individual has been suddenly interrupted by an acute dilatation, which takes place frequently on the right side, more frequently than on the left, and in developing the history, if we allow the patient to tell the story, when we get to the stomach we have a history of chronic gastritis, and when we examine the urine we find albumen and casts; it is simply an engorgement. So in the pathology of many of these cases, it is found in many of the organs of the body, if the engorgement has lasted for any length of time, and many of those patients have frequently entirely forgotten any cardiac symptoms, because other symptoms have been more urgent, and they have lost sight of the cardiac trouble. They forget that a few years ago there was some trouble that in time wore away, they got strength, compensation was fair, and they have even forgotten the time when that compensation suddenly failed and their other troubles began. We develop many histories very much like that in the course of a year, so that the personal history that is sometimes, some parts of it, so annoying to a physician, has got to be looked to with great care. Take a kidney indication; we find albumen and casts, of course, and if we are a little careless we get no further. We think we have a case of Bright's disease, and rest, when, if by some means the heart resumes its function, the engorgement passes away, and the kidney disease sometimes passes away with it. I have seen a good many cases of this kind. In regard to the treatment, I do not think I can add anything to the excellent advice we heard in the papers.

DR. A. W. ABBOTT (Minneapolis): The question of diagnosis of chronic myocarditis has been so thoroughly gone over that I do not see anything to add to it. We always have our peculiar notions as to treatment, but these are fixed and individual cases. In my own experience digitalis has not been as satisfactory in the treat-

Digitized by Google

ment of these cases as it has been in other forms of cardiac disease, while in cases of dilatation weakness we often find that digitalis is the best drug we can use; yet when it comes to these chronic cases with sclerotic arteries the use of digitalis is often disappointing. I like the point Dr. Bell made that small doses are often beneficial, and particularly as I have often found where digitalis proves satisfactory they were all right, and more so in these cases than in other forms of cardiac trouble. I wish to add a word to the point Dr. Stinchfield raised as to the influence of acute myocardial troubles in bringing about the chronic form. I think we are all inclined to pass over acute myocarditis as one of those diseases that is difficult to recognize. Of late years I look for it more, I examine my patients more carefully, and where it does come it usually follows after an attack of la grippe, and one year after another I see many more cases of acute myocardiac trouble than ever before. I think last winter and spring I saw a half dozen cases of myocardiac diseases of a decidedly acute character, among all classes of people. Sclerotic arteries were found occasionally in those who were young, sometimes in children, and not infrequently in earlier and middle life. Often we find people who give a history of having had la grippe; they have not convalesced as soon as they expected to; they get tired out quickly, and feel fatigued after any exertion, and we are apt to tell them that is one of the results of influenza, give them a tonic, and let them go. If we follow them up more closely we find there is a decided weakness in the myocardium that diminishes the strength of the pulse and makes it more frequent. Whether this is myocarditis or whether it is a trouble due simply to the nerves of the heart muscle is a thing yet undecided. We find as some of these cases go on the action of the heart becomes distinctly rapid. Palpitation coming on in some of these cases is very decided and much greater, and is apt to leave serious trouble behind. In this class of cases in those who are young we get great deal better results from rest than we can from other treatment. In cases of chronic myocarditis we find the aged would be benefited by prolonged rest in bed, yet these people cannot stand a long rest in a recumbent position, and we are very apt to get a case of congestion which may prove serious. But in children who develop the trouble, if we give them a rest for weeks, and sometimes months, we have the result that we get a heart that becomes almost in many cases as it was before the attack. I have seen cases where the first symptoms showed a shortness of breath, showed evidence of dilatation, where it showed a decided murmur, and where we appeared to have a case of endocarditis, yet under rest and treatment the heart muscle gets back its strength and the murmur disappears. I have one case in which a few weeks ago there was a distinct murmur, and now that murmur has entirely

Digitized by Google

disappeared. The pulse, instead of being rapid, has become slow, and instead of being irregular, it has become regular, and the child gives every indication of complete recovery. It has become too much of a habit to listen to the heart, and if we find no murmur there let it go. We should all take the lessons to heart that have been given us today, and remember that any heart or the muscle of the heart is amenable to treatment. We cannot do anything of more value than to treat the heart muscle.

DR. GEO. DOUGLAS HEAD (Minneapolis): I wish to speak of one phase not touched upon in the papers on myocarditis, and that is the persistently slow pulse. I have seen two cases, one in Osler's clinic at Johns Hopkins and the other in Vienna, in which the patients complained of fainting attacks, which lasted for some minutes, associated with extreme slowness of the pulse, the pulse going sometimes as slow as 15 to the minute. Such cases are described as Adams-Skokes' syndrome, and are a true myocardial degeneration or a coronary arteriosclerosis. It is important to recognize these cases when they come under our observation.

Digitized by Google

NECROSIS OF SOFT PARTS FOLLOWING ENORMOUS SUBCUTANEOUS INJECTIONS OF ADRENALIN

F. A. DUNSMOOR, M. D.

Minneapolis

March 2, 1904, Mrs. F. A. P——, aged 18, was delivered of her first child by Dr. N. M. Cook of this city. Nothing unusual occurred at the confinement, and Dr. Cook reports no septic case seen by him at any time, and that he has never seen a fatal case in midwifery, and was certain he was surgically clean in the case. Four days later the grandmother, acting as nurse, reports that a piece of after-birth, large as a goose egg, came away, and the patient was very shortly in high fever with the usual symptoms of puerperal infection.

I saw the case in consultation the next evening, when the temperature was 105°, pulse 130, abdomen distended, tympanites, face anxious, lochia diminished, and general condition bad. I recommended intra-uterine irrigation, strychnia, and calomel, and that the patient be sent to the hospital that a pan hysterectomy might be made. There was some delay, so the patient was not admitted to the hospital until 6 p. m., March 8th, much prostrated, temperature 104.5°, and pulse 124. Hoping to get patient in condition for operation next morning, I ordered stimulants, strychnine, ice-pack to head, intra-uterine douche, and hypodermoclysis, normal saline solution Oii, sol. adrenalin 5ss, to be given every six hours, first under breasts, next in the thighs. The interne misread the directions and made the solution 3 per cent adrenalin solution, thus giving an ounce of the 1-1000 solution in one quart. It is not probable that after the first the entire quart was given in the three fol-

Digitized by Google

lowing injections. The mistake was not discovered until my attention was called to the necrosis, which included the skin, fascia, adipose and all tissues down to muscle over an area of thirty square inches below left breast in the first instance, with lesser destruction in each of the other points of administration.

The case was seen by Drs. J. H. Dunn, J. W. Little, A. A. Law, and other physicians about the hospital, and their opinions was that she would not survive hysterectomy. The house officer reported that "she had a pulse like a horse" after a hypodermoclysis, and the temperature fell to 100° and the pulse to 120 ,immediately rising to 105°, pulse 135 to 150, and making the usual zigzag between 105° to 100° daily. Involuntary dejections, tremor, sweating, and diarrhea continued until complete separation of the slough of breast and thigh on the 23d of March. There was irritating cough, neuralgia of face and head, and mental disturbance for complications during the first fifteen days. The temperature varied from 98.5° to 101° from March 23 to April 17, when she was discharged.

On April 2d, with the assistance of Dr. J. W. Little and Dr. Cook, I re-covered the exposed muscle on the chest with Tiersche's skin grafts (removed from her husband), which made immediate union, and produced as good results as if on a patient in perfect health.

April 16th, under cocain anesthesia, margins of skin wound about the slough in the left thigh were freshened, and skin and fascia separated from the muscles and drawn together by sutures.

The case is reported, not with any idea of depreciating the value of the adrenalin solution, but rather, to show its power as a hemostatic, as well as to consider if this drug should not have the credit of saving the patient's life in spite of the sloughing caused by the excessive dose. The solution was certainly absorbed even after it had completely shut off the circulation to the superimposed tissues. It is evident that a 3 per cent solution injected by the side of an artery the size of those supplying the chest-wall will control

Digitized by Google

the vessel as if tied. At the same time its stimulating power of heart and general circulation will be markedly manifest. I have frequently applied the full strength of the 1 to 1000 solution to abraded surfaces within the abdominal cavity on torn intestine or meseentary with much benefit, and no bad symptoms have followed. The strength of the solution to be used hypodermically when confined in small space must be considered with care, since the fact is proven that a solution of 3 per cent is competent to so constrict the artery as to shut out nutrition of the area that is supplied by the artery with which the solution is in contact.

DISCUSSION

DR. L. F. SCHMAUSS (Mankato): About a year ago I had a little experience along this line. I had an old lady with a urethral caruncle, which I removed and in which adrenalin 1-1000 strength was applied to control the oozing. It was followed by necrosis. I should have ascribed it to the use of adrenalin if it had not been that the patient was burned on the thigh with a hot brick. This wound also was followed by gangrene. Both finally healed. The patient died about six months later of apoplexy, and it is my opinion that the adrenalin had nothing to do with the necrosis following the operation. It was simply a case of "apoplectic diathesis," of marked susceptibility to gangrene.

DR. JAMES MCKEON (Montgomery): I have used adrenalin for almost two years in the treatment of asthma, not as a cure, but as pallative measure, and with good results. I have injected from five to fifteen minims hypodermically. I have never had cause to regret using it, I have never had any gangrene following its use, and my patients derived more benefit from it than from any other one remedy.

DR. O. W. ARCHIBALD (St. Paul): I used adrenalin in 1-1000 solution in the case of amputation of the small toe. I had quite a large slough, I noticed afterward, on the other foot and hand. There was no actual gangrene at any other place. I used a very small quantity, probably a half ounce or quarter ounce of 1-3000 solution.

DR. F. A. DUNSMOOR (Essayist): I will say in explanation that the interne did not intend to use three ounces. I made the sign for a half dram, and the doctor in reading my figure for the dram thought it looked like the figure 3, and the ½ he took for %, so he made a three-per-cent solution, apparently following written orders. We got this woman in this distressing condition by giving her an injection of this solution four times in twenty-four hours. She had three ounces of the solution in her system. You need not be afraid that it will act as a poison. It will tie up the blood vessels, which shows its value as a remedy for hemorrhage.

Digitized by Google

THE ETIOLOGY AND PATHOLOGY OF GASTRIC ULCER

W. D. SHELDEN, M. D.

Minneapolis

The frequency of gastric ulcer, including open and healed cicatrices, all cicatrices being considered healed ulcers, is about five per cent in the cases as they come to the autopsy table. Open ulcers are found in from one to two per cent.

In 607 autopsies collected by Welch, 226 occurred between the ages of 20 and 40, while 222 occurred between 40 and 60. Age is determined more accurately by clinical, than by post-mortem, records. In 252 clinical cases, Lebert found 68 per cent to occur between the ages of 20 and 40, and 20 per cent to occur between 40 and 60. Ulcer under ten years is rare.

Kundrat says that the millet-sized ulcers, developing, he believes, from hemorrhagic infiltrations in the gastric mucosa in children, never develop into typical ulcers because acid catarrh is uncommon.

In old age the frequency of ulcer diminishes, but, considering the number of individuals living at 60, the percentage still remains high. Welch's statistics show that out of 607 cases of open ulcer, 119 were found in persons over 60. The female sex is the more often affected, the ratio being 3 to 2. Usually ulcer appears in women between 20 and 30, and in men between 30 and 40.

Vocation cannot be said to have any great determining influence in the causation of ulcer. Nevertheless, servants, and more especially cooks, seem to be peculiarly prone to the affection. Bamberger laid considerable stress upon the susceptibility of cooks to this disease.

Digitized by Google

The ingestion of hot fluids has been suggested as a possible cause.

The frequent traumatisms to the epigastrium, to which carpenters and shoemakers are exposed, have been known to be followed by ulcer.

The fine sharp dust swallowed by stone-cutters and grinders has been thought to have an etiological bearing on ulcer.

The old and recent ideas regarding the etiology of gastric ulcer have been based largely upon experimental investigation. Of late clinical laboratory methods have added valuable information.

Hunter maintained that the stomach resisted the digestive action of the gastric juice by virtue of its inherent vital power. This idea prevailed until Claude Bernard announced that life, *per se,* was no protection against digestion, basing his opinion upon his celebrated experiment in which he observed that the hind legs of a living frog became digested when held in a dog's stomach. His idea of the immunity of the stomach itself was that while the superficial layers of the epithelium were being constantly digested, yet the rapidity of regeneration was sufficient to afford protection to the deeper structures.

Pavy went still farther by experimentally removing portions of the stomach mucous membrane, and on postmortem examination of the animal found the muscularis unattacked. He also demonstrated that when the circulation was interrupted, in cases in which he had produced hyperacidity, even though the epithelium was present autodigestion occurred. Autodigestion, however, occurred, when the same percentage of acid was used, in cases in which no interruption of the circulation was induced. From these experiments he drew the erroneous conclusion that the mucous membrane with its epithelium formed no barrier, and he suggested the theory that the alkalinity of the circulating blood, by neutralizing the acidity of the gastric juice, protected

Digitized by Google

the stomach from autodigestion. Leube, writing in 1878, says that in order that destruction of the deeper layers of the gastric mucosa can occur, the normal alkaline reaction of these parts must first be neutralized by the acid gastric juice. This can only occur under two conditions, namely, either when the gastric juice is abnormally acid or when the alkalinity of the walls of the stomach is reduced. Leube showed later that the exposed muscularis is actively contracted by the irritation of the gastric juice, closing bleeding vessels and covering defects in the mucosa, this being easily accomplished by the redundancy of the mucous membrane. This fact places the experiments of Pavy on uncertain ground, as the question at once arises, whether the muscularis was at all exposed to the action of the gastric juice, and also at once calls for new evidence concerning the relation of the epithelium and the circulating blood in protecting the tissues from autodigestion.

Matthes' work is so far the most important that has been done to clear up this question. In order to overcome the objections raised to the experiments of Pavy he prevented the contraction of the muscularis by sewing the muscularis to glass rings placed upon the serosa. He then made a defect within, including the entire mucosa, somewhat smaller than the size of the ring. In a series of experiments he showed that the muscularis was not attacked, and that healing proceeded promptly. By introducing acids into the stomach he was able to retard healing materially. He also showed that portions of the intestine laid open by previous operation, when subjected to active gastric juice, reacted in proportion to the caustic effect of the acid largely, and that the acidity of the solutions was not changed by their contact with the hyperemic membranes. The pepsin in the solution played but little part, simply intensifying the action when strong solutions were used. Weak solutions, which show the most active digestive powers, had the least affect on the mucous membrane. This was espe-

Digitized by Google

cially true of the gastric juice prepared directly from fresh stomachs, whereas these show the most active digestive properties as well as the highest acidity of any of the solutions used by Matthes. Examination of the tissues showed that the effect was that of a caustic agent when strong solutions were used. The acidity of the solutions remained unchanged, showing that the blood played no part through its alkalinity in protecting the tissues. Solutions representing the strength of the normal stomach contents produced no effect on the mucous membrane, the epithelium remaining intact.

The importance of the epithelium is clearly shown in these experiments. Even intestinal epithelium is not affected by normal gastric juice, whereas solutions which cause extensive destruction in the intestine are borne with impunity in the stomach. The experiments also showed that the upper parts of the intestinal tract were less affected by the acid solutions than the lower, proving that certain parts are more resistant than others. It is important to know that when the acid solutions are not strong enough to kill the epithelium, the addition of pepsin does not increase the effect.

Samuelsohn neutralized the circulating blood going to the stomach, and even when a 2 per cent HCl solution was introduced into the stomach, found that the entire wall remained intact. Caustic effects are constantly seen after the introduction of a 5 per cent HCl solution.

It has been assumed that the deeper layers of the mucous membrane were alkaline. At the instigation of Riegel, Edinger examined the reaction of the mucous membrane in 20 cases, and found that the entire thickness of the membrane was acid, rather than the superficial layers, as was first supposed.

Another interesting point connected with the idea of the alkalinity of the blood as a protection to the stomach, is that concerning the diffusion of fluids through living tissue. Sehrwald has shown that the diffusion of fluids through the walls of the living stomach does

Digitized by Google

not behave according to the laws of diffusion through dead membrane, but that the interposed living epithelium lessens the interchange between the blood and the gastric juice, and if this were not true, neutralization would much more likely occur during the secretion of the gastric juice than after it reaches the stomach cavity.

Trypsin, a much more powerful digestant than pepsin, and one which can be suspended in an alkaline, non-caustic fluid, is shown by many experiments to have no effect upon living tissue. Tissues first killed by trauma, bacterial products, or caustics, were, however, rapidly digested.

The following conclusions seem justifiable from this discussion:

1. Proteid digestants of the body do not digest healthy living tissue.

2. Hydrochloric acid of the gastric juice first kills the tissues attacked by it, and then the dead cells are digested.

3. Different animal tissues behave differently when acted upon by the gastric juice. The difference depends upon the adaptability of the cell to physiological conditions and upon its function.

The protection possessed by the stomach wall depends primarily upon its epithelium.

Circulatory disturbance is the primary cause of gastric ulcer. Local necrosis is always followed by ulcer formation. Virchow was the first to show that plugging of small gastric vessels was followed by infarction and ulcer formation. Mueller tied the portal vein, causing sudden venous congestion with extravasation of blood and ulcer formation. Pavy showed that tying the larger vessels of the stomach was not followed by infarction, owing to the abundant anastomosis of the vessels. Cohnheim succeeded in introducing a canula as far as the vessels of the submucosa, through which he injected small

Digitized by Google

insoluble particles, and saw necrosis of the mucous membrane follow.

Circulatory disturbance may result from many causes. Chemical, mechanical, thermal, and electrical injury to the mucous membrane has been followed by ulcer. Diseases of the vessel walls as arteriosclerosis, hyaline degeneration, and aneurismal dilatation, are sometimes seen. Muscular contraction of the pylorus is believed by some to be sufficient to stop the circulation in the mucous membrane.

Hyperacidity has of late been receiving more and more consideration in relation to ulcer. Ulcer is attended with hyperacidity in the great majority of cases. It has been repeatedly found where no ulcer is clinically present; especially is it prevalent in chlorosis. Hyperacidity persists very often long after an ulcer has healed. In all probability hyperacidity, not ulcer, is the primary and most important condition. In other words, hyperacidity furnishes the condition which makes ulcer possible.

That an ulcer heals promptly in the normal stomach Matthes has fully demonstrated. He also showed that experimental ulcer is greatly retarded in its healing by increasing the acidity of the gastric juice.

The puzzling thing about ulcer is its chronicity. Most important in the explanation of chronicity is hyperacidity. As Matthes has shown, the epithelium of the stomach can tolerate much stronger solutions of hydrochloric acid than, for instance, the granulations in a healing ulcer. Other reasons for chronicity are found in vessel changes about the ulcer, in anemia resulting from repeated hemorrhages, in deep ulcer, in adhesions with surrounding tissues, and also, according to Schmidt, in the fact that in the pyloric region the mucosa is not so redundant as elsewhere, so that the contracting muscularis cannot close in the defect.

Schiff and Ebstein found that injury to the optic thalmus and corpora quadrigemina of one side was followed by ulcer formation in the stomach. The same re-

Digitized by Google

sults were obtained by cutting through one half of the medulla oblongata. Circulatory disturbance due to injury of the vasomotor tracts is offered as an explanation for these observations.

Extensive burns of the skin are frequently followed by the formation of one or more gastric ulcers.

Ulcer is usually single. There may be as many as five or more. Most frequently it is situated in the region of the lesser curvature, usually nearer the pylorus than the cardia. The ulcer has a punched-out appearance in acute cases; chronic cases show thickening of the edges with a funnel-shaped base. It is usually circular in outline, but by confluence of two or more ulcers irregular shapes may result, sometimes encircling the stomach. The base of the ulcer may be formed by the various layers of the stomach from the submucosa outward, or by some of the adjacent organs to which the stomach has become attached.

Healed ulcer with scar formation is found, as compared to open ulcer, as about 3 to 1. Probably a small ulcer may leave no scar when the base of the ulcer was not fixed and thus allowing the mucosa to close.

Healing usually results in a stellate scar, which is depressed and which is surrounded by puckered mucous membrane.

As the ulceration approaches the serous coat local peritonitis, with adhesion formation, occurs. The majority of the ulcers occupy the posterior wall. The ulcer usually becomes fixed to the pancreas or to the left lobe of the liver; more rarely fixation to other organs is seen.

Cicatrization, with contraction of the alimentary tube, often leads to deformity, the character of which depends on the size, situation, and depth of the ulcer.

Pyloric stenosis, with dilatation of the stomach, and the so-called hour-glass contraction, resulting from a series of ulcers extending around the stomach, are the most common deformities.

Cardiac stenosis with dilatation of the esophagus oc-

Digitized by Google

curs more rarely. Gastric ulcer, when followed by stenosis of the pylorus and dilatation of the stomach, especially where perigastric adhesions have produced a mass of considerable size, may so closely simulate carcinoma that a microscopical examination may be needed to identify the condition. This is most apt to occur where repeated, severe hemorrhages and constant vomiting have caused pronounced emaciation of the subject.

Perforation may pursue a chronic course, adhesions resisting and limiting the extent of the ulceration. Some solid organ may form a barrier. Perforation may occur into some of the hollow viscera.

Large abscesses may form in the lesser peritoneal cavity or beneath the diaphragm. Gastric ulcer or complicating abscesses may perforate the diaphragm into the pleura or the pericardium. Gastrocutaneous fistulæ are rare occurrences. Pylephlebitis and abscesses of the liver may occur without perforation of the ulcer. Often the condition is very complicated. Open and healed ulcers with contraction of the scars, deformities of the stomach, perforation communicating with one of the hollow viscera, with abscess cavities or with the stomach itself, may occur in a single case.

Fatal hemorrhage occurs in from 3 to 5 per cent of all cases. It is most frequent in men over 40. Fatal hemorrhage may occur from the erosion of small submucous vessels, but usually profuse bleeding signifies a deep chronic ulcer. The splenic artery and the artery of the lesser curvature are the usual seat of profuse hemorrhages.

Anemia following repeated hemorrhages may prove fatal from exhaustion, fatty degeneration of the heart, or thrombosis of the cerebral vessels.

Digitized by Google

ULCUS VENTRICULI—ROUND, GASTRIC ULCER OR PEPTIC ULCER

CHARLES F. NOOTNAGLE, M. D.

Minneapolis

SYMPTOMATOLOGY AND DIAGNOSIS

A good description of this disease was first published by Cruveilhier in 1829, hence it is also known as Cruveilhier's disease. From this time on, especially during the last twenty years of the 19th century, new facts were elucidated, especially in its diagnosis and treatment.

The symptoms of peptic ulcer may be so pronounced that an absolutely correct diagnosis may be made from these alone. In illustration I will cite a case from my practice:

Mrs. R——, aged 30, well-nourished, good color, mother of one healthy child, doing light housework.

Family history was negative.

Personal history: always enjoyed the best of health with the exception of a mild attack of diphtheria at the age of 11.

During the first part of Oct., 1901, she noticed that hot or cold ingesta caused pain in the epigastrium a little to the right of the median line. About ten days later a sensation of distress in the same spot commenced one-half to three-quarters of an hour after meals and continuing for three or four hours. Within a few days vomiting occurred at times, producing an immediate cessation of the gastric distress. Pain was also marked in the back in the region of the 9th and 10th dorsal vertebræ. At times a peculiar burning sensation and a feeling of pressure, extending along the esophagus into the throat, were associated with the gastric distress. Appetite was always good. A few times the vomitus and also the feces contained a very small amount of

Digitized by Google

blood. About three weeks after the beginning of the disease the vomitus (three hours after a mixed meal eaten against strict orders to the contrary) contained 0.38 of one per cent of free and combined hydrochloric acid.

The above leaves no room for doubt in regard to the diagnosis of peptic ulcer.

Again, the existence of the disease may be suddenly revealed in an apparently healthy person by symptoms of perforation or by a slight or pronounced hematemesis or by blood in the stools, or as is usually the case, blood appears in both vomitus and stools. To illustrate this I shall cite the following case:

Mrs K——, aged 33, mother of three healthy children, the youngest four months old, always enjoying good health, was suddenly attacked by a feeling of faintness during the afternoon of Dec. 11, 1902. In the evening of the same day she fainted, and I was hurriedly called. I found her suffering with all the symptoms of a severe internal hemorrhage, although consciousness had returned. While I was still at the bedside she vomited a large amount of blood, and the following day tarry stools appeared. The patient was kept absolutely at rest and without food of any kind for a number of days, and no hemorrhage recurred. Later on liquid diet was instituted and continued for about a month, without gastric distress of any kind during this entire period being manifested, but on permitting a more substantial diet all the classical symptoms of gastric ulcer, with pain in the epigastrium shooting through into the back shortly after meals, cessation of pains after vomiting, etc., developed. After a strict course of rectal feeding and absolute rest the patient recovered.

It may also be necessary to observe a case for a long time before having even a suspicion of the existence of a gastric ulcer.

To illustrate this I shall give you the following history from my case book:

May 10, 1899, Mr. B——, aged 45, married, healthy children, teacher in public school, weight 150 lb., which

Digitized by Google

one and one-half years ago was 180 lb., always lived in non-malarial country.

Family history was negative.

Personal history: always enjoyed good health, except had measles in childhood, no venereal diseases of any kind.

Present malady commenced one and one-half years ago with "gastric fever," was ill with severe pains in epigastrium, vomiting incessantly and the temperature at times was as high as 102° F., pulse rapid, 120 beats per minute. At the end of three weeks he gradually improved, regaining part of weight lost during illness, but stomach continued to cause discomfort. At the end of February, 1899, this discomfort in epigastrium increased; appetite disappeared; bowels became costive; the epigastric pain was increased by the ingestion of food, especially cabbage, sweets, onions, etc.; at times feels dizzy without reference to eating; sleeps well; weight 150 lb.; has slight daily headaches; does not vomit, nor feel nauseated; urine normal in every respect; entire tongue covered with a thick white coating, is flabby, and shows indentations of teeth.

Diagnosis, doubtful, but probably chronic gastritis. I proposed test-meal, but was refused.

Treatment: Restriction of diet, hot water night and morning with sodium phosphate, and the following prescription:

℞ Tr. nucis vom., 10.
Tr. cinchon., 10.
Ext. M. condurango, fl., 40.

Sig.: Teaspoonful three times daily ten minutes before meals.

May 24, 1899. Improved and felt better until the past few days, when he contracted a cold, causing coryza, cough and return of old symptoms, except that bowels remained regular. This treatment, with slight changes, was continued, but without much success until patient went out fishing for four weeks when he improved remarkably, only to relapse after returning and resuming his old occupation. I

Digitized by Google

could not induce him to have stomach contents examined, and I refused to continue treating him. I lost sight of patient until the spring of 1902, when he came prepared to let me "kill him," as he expressed it. He was given a test-breakfast, which one and one-quarter hours later was removed, and found to contain free and combined hydrochloric acid, 0.08 of one per cent, much mucus, a small amount of fluid with bread well comminuted, and a small amount of blood. The stools were examined for blood, and on the third day a positive reaction occurred. This clinched the diagnosis of gastric ulcer. The patient was put to bed, and fed rectally for four weeks, when I gradually permitted a resumption of oral feeding. He made an uneventful recovery, and has not had a return of any gastric symptoms, and has regained his former weight, 180 lb.

In other cases the disease runs an entirely latent course, or with symptoms so slight or anomalous that no suspicion of the existence of a gastric ulcer is aroused. This is proven by the large number (5 per cent) of cases found at autopsy with the evidence of existing ulcer or scars showing its previous existence, but no clinical diagnosis of this pathological condition.

Usually the symptoms come on very gradually. At first slight dyspeptic symptoms only are complained of, especially after eating indigestible food. Little by little the gastric distress becomes more pronounced, generally commencing one-half to one hour after meals, and continuing during the entire period of digestion. The pain radiates from the epigastrium, especially toward the back in the region of the 7th to the 12th thoracic vertebra. On pressure the painful spot in the epigastrium is usually very small and sharply circumscribed. Later on, vomiting occurs, relieving the epigastric distress at once. The vomitus usually tastes very sour, and produces a burning sensation along the esophagus. The pain is markedly influenced by the position of the patient; in some postures it is much increased, while in others it disappears almost entirely. At times the vomitus, as well as the feces, contains blood in varying amount. If the

Digitized by Google

hemorrhage is pronounced or frequently recurring secondary anemia develops, but never true cachexia, otherwise the patients retain good color, and emaciate but very little, unless they starve themselves through fear of pain produced by the ingestion of food. The vomiting usually occurs one to three hours after meals.

The appetite is variable, although in many cases it remains exceptionally good. At first the tongue presents a bright red color, while later on when but little food is taken, it frequently becomes coated. The bowels are usually more or less costive. The pain, one of the most prominent symptoms of gastric ulcer, shows certain characteristics; it is paroxysmal in nature, occurring during the period of digestion; it is strictly localized, usually corresponding to the spot most sensitive to pressure, and is influenced by quality, quantity and thermic condition of the ingesta and also by the position assumed by the patient. The pain may become continuous when localized peritonitis, adhesion, or perforation into adjacent organs occurs.

Vomiting of blood is considered one of the most important and characteristic symptoms of gastric ulcer, but in many cases it is absent, and frequently, when present, its source is other than ulcer; but if it occur in conjunction with other symptoms pointing to the existence of gastric ulcer it confirms the diagnosis. There are several methods of demonstrating the presence of blood in the vomitus or feces. A spectroscopic examination of the specimen is usually positive in its results, but not always available. Weber's guaiac-turpentine test or Rossel's aloin test are the most practical and very reliable when slightly modified in their usual procedure. Potatoes, very many other vegetable substances, compounds of iron, etc., give a positive color reaction for blood, hence the modification of the tests. Take about two or three drams of stomach-contents or feces, add one or two drams of glacial acetic acid, and one dram of ether; shake vigorously, and allow to stand until the upper part of the mixture has become clear; pour off about thirty drops into a test-tube; add to this a little finely pulverized gum guaiac

Digitized by Google

and about thirty drops of ozonized (old) turpentine. If blood be present the mixture will turn bluish-violet, and if absent reddish-brown.

Equally easy of execution and a more sensitive test has recently been published in the Deutsche Medizinische Wochenschrift. I have had no personal experience with it, but as it is vouched for by good authority, I shall repeat it, and the following is the mode of procedure: ten to fifteen grains of pulverized aloin are placed in a test-tube, add one dram of alcohol, and shake. Add to thirty drops of the acetic-acid-ether extract of stomach-contents or feces twenty to thirty drops of ozonized turpentine, and then ten to fifteen drops of the above, always freshly prepared aloin solution. Now, if blood be present the mixture becomes light-red, and if allowed to stand for a short time cherry-red. If no blood be present, the mixture will remain yellow for one or two hours before showing any red color. Raw or rare meats should not be eaten two or three days previous to making either of the above tests. We must also guard against the accidental admixture of blood with the stomach-contents or feces, its source being bleeding gums, epistaxis, pulmonary hemorrhage, hemorrhoids, etc.

If the base or edges of an ulcer, or both, are infiltrated and thickened, and situated on the anterior wall of the stomach, not covered by the liver, the ulcer can be palpated. Frequently a tumor can be felt in the pyloric region. This may be caused by a functional spasm or hypertrophy of the pyloric muscle, carcinoma, abscess, and adhesions. Chemical examination of the stomach-contents, in conjunction with the other symptoms, usually indicates the origin and significance of such a tumor.

To recapitulate: If the characteristic pain, shooting through into the back, is produced by the ingestion of food, and accompanied by occasional vomiting one to three hours after meals, a probable diagnosis of gastric ulcer is permissible. If blood can be found in the vomitus or stools this diagnosis becomes positive. Excess of hydrochloric acid in stomach-contents is also confirmatory evidence of the

Digitized by Google

existence of gastric ulcer. In other cases the only indication of a gastric ulcer is the sudden occurrence of a gastric hemorrhage, revealed by blood in the vomitus or feces or both.

Again, the gastric symptoms may be so vague that no positive diagnosis is possible. The success of an ulcer-cure in such a case will establish the diagnosis on a firm basis. Some cases may run an entirely latent course, and their existence may not even be suspected until revealed at autopsy. One or more of the symptoms are absent in the majority of cases.

The stomach-tube should not be used in cases where a positive diagnosis can be made from the symptoms alone, but when this is impossible, and no hemorrhage has occurred, its use is permissible.

DIFFERENTIAL DIAGNOSIS

Gastric ulcer may be confounded with simple nervous gastralgia, duodenal ulcer, gastric carcinoma, intercostal neuralgia, hemorrhagic erosion of the gastric mucosa, gallstone colic, and hypersecretion.

In nervous gastralgia the pain occurs irregularly; i. e., it is present sometimes, and disappears entirely at others, leaving the patient free from all gastric distress even after a meal of indigestible foods, whereas in gastric ulcer the latter procedure is regularly followed by an exacerbation of all previously existing gastric symptoms. Also the sharply circumscribed location of the pain and painful points of pressure are absent in simple gastralgia.

In duodenal ulcer the pain is not felt in the back, and is usually located further to the right of the median line in the epigastrium, occurring at a later time after the ingestion of food. If hemorrhage occur, the blood will only appear in the feces. Hyperacidity speaks in favor of gastric ulcer.

In gastric carcinoma we find subacidity or anacidity, frequently lactic acid fermentation; at times a tumor, irregular in outline and increasing in size, and finally the development of cachexia. In gastric ulcer we usually find hyperacidity or normal acidity, no lactic acid fermentation, at times a

Digitized by Google

tumor smooth in outline, not increasing in size and no trace of cachexia; but the differential diagnosis of these two conditions, especially in their beginning, is fraught with many difficulties.

Intercostal neuralgia should never cause serious difficulty in differentiating it from gastric ulcer, if the case is carefully examined.

Hemorrhagic erosions of the gastric mucosa are usually manifested by hematemesis, a burning sensation and pains extending over the entire epigastrium, never producing any pain in the back, and not relieved by a chance in patient's position.

Even a superficial examination should enable us to differentiate gall-stone colic from gastric ulcer. The former occurs at intervals, leaving the patient perfectly well during the interim; whereas in gastric ulcer the distress appears regularly after the ingestion of food.

PROGNOSIS

The sooner an ulcer is properly treated the sooner will it heal, and the less likely will dangerous sequelæ follow. If a gastric ulcer is permitted to become chronic its victim is in constant danger of hemorrhage, perforation, circumscribed peritonitis with adhesions, great contraction of the resulting scar, and, last but not least, malignant degeneration. We can easily see, reasoning from analogy, how an ulcer of many years' standing can take on malignancy, but if healed before it becomes chronic, I see no reason why it should assume malignancy more easily in the stomach than in other parts of the body, other things being equal.

It is claimed that eight to ten per cent of gastric ulcer cases die, either directly from the ulcer or its many sequelæ, but in the light of recent investigation these statistics need revision. Judging from recent surgical literature, nearly all cases of gastric ulcer, cured or chronic, sooner or later develop into gastric carcinoma, hence the percentage of deaths should be much greater than the above—a gloomy picture indeed for the poor sufferer or past sufferer of gastric ulcer!

Digitized by Google

But, as I said above, if a gastric ulcer is recognized, and early and proper treatment instituted, it will heal quickly, and I don't see why a scar of a recent ulcer in the stomach should assume malignancy with greater ease than a scar in any other part of the body subjected to an equal amount of irritation. From my limited experience in gastric ulcer the above percentage of deaths is too high. In every case of gastric carcinoma coming under my observation, I have taken a careful history, and it has been the exception in my experience to establish, even remotely, the previous existence of a gastric ulcer.

Our surgical colleagues advise early operation in gastric ulcer to prevent the dangers of complications, especially the degeneration of the ulcer or scar into carcinoma. In order to accomplish the latter the ulcer should be excised, but in all medical journals and the newer surgeries we are reminded of the unsurmountable obstacles encountered in this procedure and a gastro-enterostomy is advised only; this for a time, at least, will relieve the pyloric ulcer of the irritation caused by food passing over it; but if later on the food again leaves the stomach through the pylorus, then the opening established by the gastro-enterostomy closes, and the scar of a pyloric ulcer will be subjected to the irritation of food passing over it, and the dangers of malignant degeneration are not lessened by the operation of gastro-enterostomy. Even if the ulcer be excised we have no guarantee that the resulting scar from the surgeon's knife will not become malignant in time.

The operation of gastro-enterostomy should be performed in pyloric closure from scar-contraction, in frequently repeated hemorrhages endangering the patient's life, and in recurring or chronic cases of gastric ulcer not cured by proper treatment.

TREATMENT

We have no specific for gastric ulcer. All we can do is to produce favorable conditions for its healing. First of all, we must have a normal contraction of the gastric muscle, in order to bring the edges of the ulcer as closely together

Digitized by Google

as possible. Next we must have absolute rest, both of body and stomach; i. e., the function of the stomach must not be exercised. This rest must extend over a period of time of at least four weeks or more as the symptoms may indicate. During this time nourishment and water is to be supplied to the body per rectum. The nutritive enema consists of two yolks of egg, a heaping tablespoonful of Horlick's malted milk, two teaspoonfuls of alcohol, a good pinch of salt, and six to eight ounces of milk (the latter may be predigested although this increases its absorbability but very little, if any). An hour before giving the nutritive enema a quart of normal saline solution is introduced high into the rectum, both for cleansing purposes and furnishing water to the system. This saline enema, or what remains of it, is expelled just previous to giving the nutritive enema through a rectal tube (this is important, as the enema is better absorbed and more easily retained if introduced beyond the sigmoid flexure). Frequently, and in spite of its high introduction, it is difficult for the patient to retain it; then the addition of four to eight drops of tincture of opium to the enema will overcome the desire to evacuate the bowel immediately. These enemas should be repeated three times daily, and retained at least four hours. After a few days of complete gastric rest two or three glassfuls of cool (not iced) water per day may be permitted to be sipped slowly. If after a period of four weeks all gastric distress has disappeared, and no blood appears in the feces after repeated examinations, we may commence feeding by mouth, but always exercising great care. The first food to be taken consists of strained oatmeal gruel, one-half cupful five times daily. This can be taken either warm or cold, and if no distress is caused by this diet we may, after two or three days, permit one-half cupful of strong beef, mutton, chicken or calf's-foot broth to be taken with the gruel; after another two or three days we add a little rice jelly. This may be flavored with a little lemon-rind or vanilla; in another few days a little cup-custard is added; then half milk and half strained oatmeal gruel or half rice jelly is given. If the above can be eaten without

Digitized by Google

causing any return of gastric distress, we gradually return to a more substantial diet, each day adding a little more, or rather something new, such as well-toasted bread, soft-boiled egg, scraped broiled beefsteak, and finely divided white meat, and, last but not least, a baked potato. All food should be thoroughly masticated. After reaching this point we gradually return to a common mixed diet, but avoiding for months all foods containing much cellulose or acids, especially fruits. If at any time gastric distress reappears we must restrict the diet immediately. The patient should not be permitted to sit up until a mixed diet is reached, and at first but very little exercise should be permitted, always avoiding fatigue. Shortly after commencing oral feeding, it becomes very difficult for the patient to retain the nutritive enemas, and this should be regarded as a sign to cease rectal alimentation.

Many of our best gastric specialists do not pursue the above rigid dietary, but through sad experience I have been forced to evolve and adopt the above measures.

A milk diet and partial rest was the panacea for gastric ulcer up to a very recent time, and is still regarded so by many; but a few cases taught me to look with grave suspicion upon milk as a suitable food in gastric ulcer, or in many other diseases where a liquid diet is absolutely essential. After a pure milk diet we sometimes see curds vomited that would astonish anyone by their size and consistency. If milk must be given, let us at least first convert it into junket, so that the patient can masticate it, and swallow it in a finely divided state, avoiding the danger of large, tough curds forming in the stomach.

Most of our unsuccessful cases are due to negligence on the part of the patient, some to individual peculiarities, such as great induration of the edges or base of the ulcer, atony of the gastric muscle, swallowing of air, restlessness, etc., The longer an ulcer has existed the more difficult will it be to cure it. The ease and frequency with which relapses occur, is a well known fact, and this very circumstance should

Digitized by Google

make us doubly cautious in following a rigid course in our treatment.

Medicinal treatment seems of slight avail. Subnitrate of bismuth in large doses probably enjoys the greatest confidence among the profession. If hyperacidity exists, it would probably be better to give some of the alkalies to neutralize this; for it is well known that much of the gastric distress and pyloric spasm is due to the excessive acidity of the stomach-contents. In these cases I am in the habit of giving an even teaspoonful, three times daily, of the following mixture:

℞ Magnesia carbonatis (ponderos,) 50.
Bismuth subcarbonatis, 50.

This mixture has the additional advantage of being a gentle laxative, and this action should be our guide in regard to the dose to be given.

Argentum nitrate is another medicine much in vogue in Europe. This should never be given in pill form, but always in solution. One-third to one-half grain dissolved in half an ounce of distilled water should be given three times daily on an empty stomach, always to be followed by a little distilled water to avoid its constringent action in the throat and esophagus. It should be discontinued every two or three weeks for one week in order to avoid argyria.

Method of preparing the oat-meal gruel: One cupful of rolled oatmeal, a pinch of salt, a *little* sugar, and a little butter are added to one quart of water, and cooked in a covered double boiler for three hours, then strained and used. This should be prepared freshly once every day, as it will ferment if kept too long. The rice jelly is prepared in the same manner as the oatmeal gruel, except that only one-fourth cupful of rice is used to one quart of water. This may be flavored with a *little* lemon-rind, vanilla, coffee, chocolate, or caramel.

Digitized by Google

EXTIRPATION OF THE LACHRYMAL SAC, A NEW AND SIMPLE METHOD OF OPERATING

WITH REMARKS UPON VARIOUS OTHER METHODS OF TREATING AFFECTIONS OF THE LACHRYMAL SAC AND CANAL

FRANK C. TODD, M. D.

Minneapolis

The problem of curing diseases and malconditions of the lachrymal canal cannot be solved by the use of any one method. Each case that presents itself must be treated in accordance with various conditions, including, not only the cause and extent of the affection, but also the age, general health, occupation, and habits of the patient. Anyone who thinks that probing, either by the use of Bowman's small probes or Theobald's large probes, is a panacea, will be disappointed in fully seventy-five per cent of his cases when he carries this treatment into effect as a routine procedure. Some cases can be cured by such mild treatment as the dilatation of the punctæ, and many more by the use of irriga-

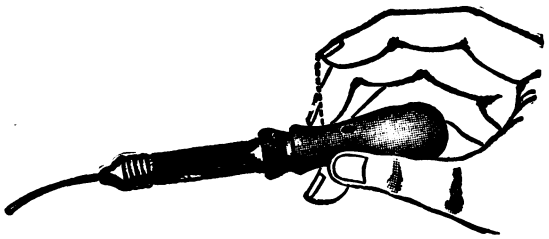


Fig. 1

tion with a boric-acid solution followed by the use of other antiseptics, of which the writer has found argyrol (20-per-cent solution) of the most value. This may be applied by using the Dunn "Antiseptic Syringe" No. 2 or No. 4, (very

Digitized by Google

valuable appliances in the treatment of lachrymal malconditions) often without cutting the punctæ or by enlarging the punctæ either by dilatation or by making a small cut (Figs. 1 and 2). Such treatment should be applied daily until drainage

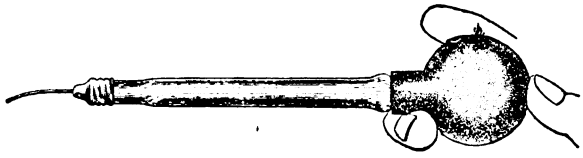


Fig. 2

is complete, and pus has ceased to form, and followed up for some time afterwards at less frequent intervals; then the patient should be given a saturated solution of boric acid to use at home morning and evening, according to the method suggested by Dr. Geo. M. Gould. The patient lies down and fills the cavity at the internal canthus (formed by the nose on the inside, the supra-orbital bridge above, the infra-orbital bridge below, and the eye at the outside) with the boric-acid or argyrol solution, then he works the solution into the canal by massage with the forefinger.

It is surprising how many cases there are which can be drained by syringing without the necessity of resorting to the knife or probe. The inflammation subsides, and the stricture gradually dilates as the swelling decreases and drainage is effected. Adrenalin is of service at first in securing temporary drainage.

The treatment by probing is one with which you are so familiar that I will not describe it. It must be resorted to in many instances, but I wish to emphasize the suggestion that it is often not necessary and frequently harmful. When much inflammation is present, probing injures the delicate lining to the canal, resulting in the production of scar tissue and strictures, sometimes bringing about the formation of cicatricial adhesions, when, before the probing, the stricture was caused only by inflammatory swelling. Furthermore the extensive slitting of the canaliculus, and the use of large probes, is almost bound to destroy the suction function of this apparatus, and it must be remembered that this suction

Digitized by Google

has much to do with the carrying off of the lachrymal secretion.

Another matter which I wish to emphasize is the value of canulæ. When made of the correct form and material

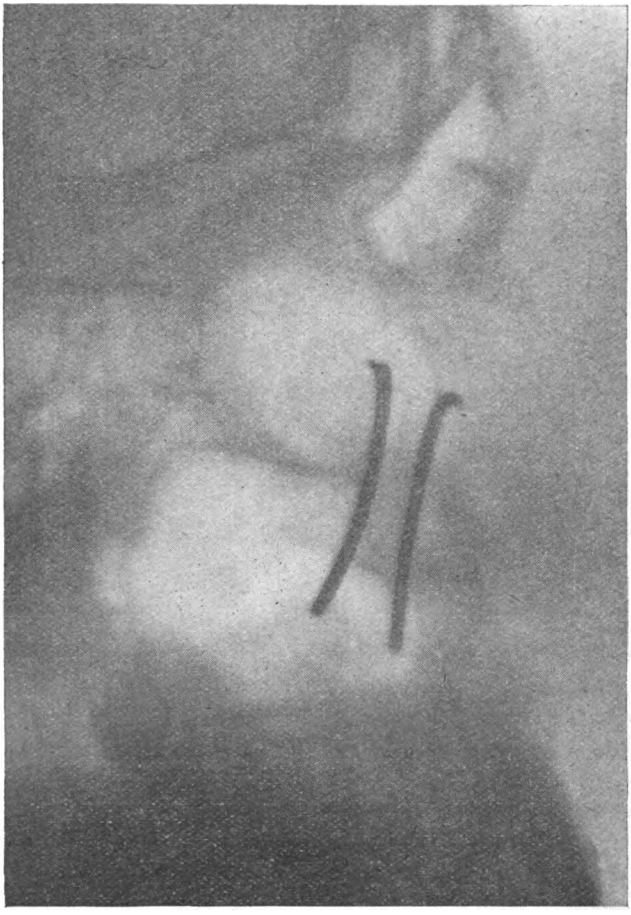


Fig. 4

(gold or gold-plated, for silver will corrode and cause irritation in the course of time) and well fitted, they will be found in many cases, which cannot be cured by syringing or probing, to be effectual not only in preventing suppura-

Digitized by Google

tion, but in serving as drainage for tears. The canula which the writer has used was devised by Dr. L. Webster Fox. The gradual curve allows the fluid to gravitate, and also prevents the tube from burying itself in the soft tissues.

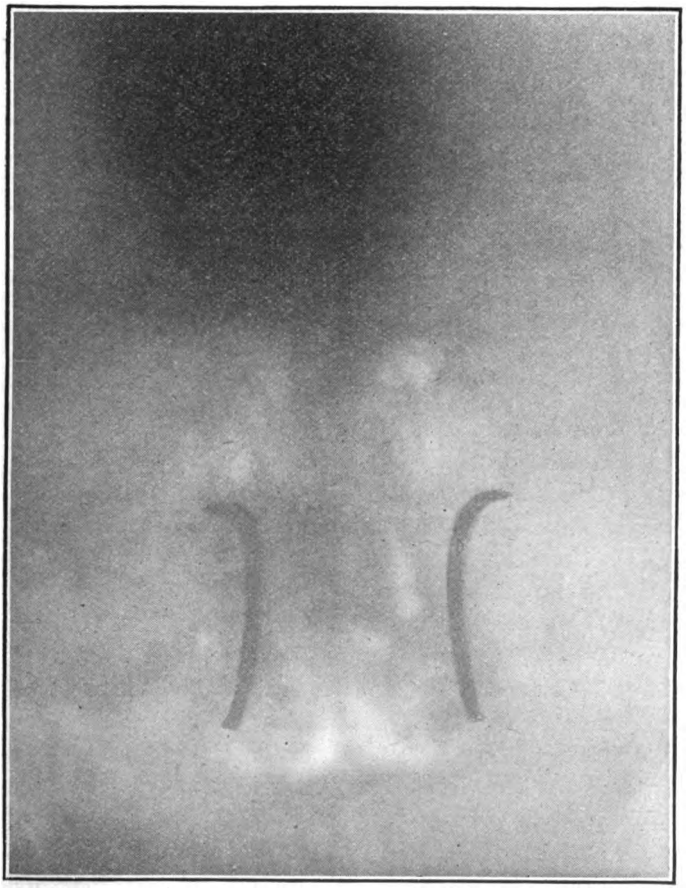


Fig. 5

The under surface at the bend rests over the infra-orbital ridge. The canula is so made that a small probe can be pushed through it to facilitate its introduction. Figs. 4 and 5 are *x*-ray pictures of the canula in place showing a partial side view and a front view.

Digitized by Google

The following are indications for extirpation of the lachrymal sac:—

1. In cases of suppurating dacryocystitis where an eyeball operation, such as iridectomy or for cataract or glaucoma, has to be performed.

2. In cases of suppurative dacryocystitis which the customary treatment outlined above,—of probing, the use of canulæ, or syringing,—fail to cure.

3. In old people or those who cannot endure the probing.

4. In cases of acute suppurative dacryocystitis recurring after supposed cure.

5. Some cases of lachrymal fistula.

6. In cases of suppurating dacryocystitis occurring in patients whose occupation subjects them to corneal injuries and consequently corneal ulceration,—machinists, railroad employees, etc.

Dr. R. A. Reeve, in Posey-Wright, describes the operation, and then manifests his opinion that the procedure is not easy by the following remark: "If this is not feasible the sac should be cut out piecemeal." Dr. C. R. Holmes says "I do not consider the extirpation of the lachrymal sac and gland an easy operation, if performed in such manner that we shall have primary union of each wound and no injury of adjacent parts. This is especially true of the sac," and he adds: "The administration of an anesthetic is absolutely necessary for the perfect performance of the operation."

A good description of the ordinary operation will be found in the Archives of Ophthalmology, Vol. 32, No. 4, 1903, by Arnold Knapp.

Extirpation of the lachrymal sac performed in the classical manner is not a simple procedure, because there is so much hemorrhage, and because the sac is indefinitely outlined and consequently ofttimes has to be removed piecemeal. The first operation I witnessed was not skillfully done despite the fact that the results were good (the operation was performed by myself), and I choose to think that the difficulty arose, not so much from the evident awkwardness

Digitized by Google

and inexperience of the operator, as from the method which the surgeon was attempting to follow. This prompted me later to devise the operation which I will describe. My first operation in which this method was used was in March, 1903. Lately I have endeavored to secure the literature upon this subject, and have not found this method described, though I have secured an excellent paper by C. R. Holmes, presented at the A. M. A., in 1898, in which occurs a paragraph that makes evident the fact that he was at that time endeavoring to attain the object which is accomplished by the method here described, so that I presume ere this he, and perhaps others, may have practiced the same procedure. Since, however, the method has not been described, I believe it is of sufficient value to warrant its presentation. Allow me to reaffirm that while I am a firm believer in extirpation of the lachrymal sac in certain cases, I still continue the more conservative methods of probing, syringing, and the use of canulæ in hopeful cases. In this paper I shall not take up your time in the discussion of extirpation of the lachrymal gland.

Performed in the ordinary manner, the operation consumes considerable time, is inexact, as the operator does not know whether he has removed the entire sac, and it is altogether a formidable procedure. The operation is therefore one which many ophthalmologists hesitate to advise though the efficacy in many cases cannot be questioned, for the results, when the operation is properly performed, are highly satisfactory in curing blennorrhea with all its attendant symptoms, excepting epiphora, and even this symptom improves on account of relieving the septic inflammation. Again, the operation is refused by patients because it requires time and the administration of a general anesthetic. The description of the operation follows:

After the patient has been properly prepared, the contents of the sac is pressed out through the canaliculus (usually already slit), and the sac is then thoroughly and repeatedly irrigated with boric-acid solution and also with argyrol or other antiseptics. By means of a paraffin or other suit-

Digitized by Google

able syringe, paraffin, prepared for surgical use with a melting-point of 110°, is injected through the lower canaliculus into the sac until it is completely filled. This at once hardens, and the sac is thus easily outlined. An incision is made in the skin over the sac in its long axis, extending from one-quarter of an inch below the dome way down to the lower extremity of the swelling. The sac is exposed, and can be easily seen and dissected out by means of knife, dull instruments, and scissors. It should be followed well down into the duct; if it is button-holed no damage is done, as the paraffin is hard and will not escape. Any necrosed bone found should be curetted, and drainage will take place into the nose. The skin is sutured, and the canaliculi destroyed afterwards by cauterization. By following these directions, no large vessels will be cut, and the entire incision may be made below the tendo-oculi. If the latter is cut it should be sutured. When a general anesthetic is administered the patient's head may be dropped over the end of the table as in adenoid operations, to allow the blood to run out of the nostrils and prevent its entrance into the larynx. If cocaine is used some should be injected into the sac previous to the injection of paraffin; and before making the incision the skin is anesthetized by the infiltration method in which case adrenalin may also be used.

Digitized by Google

DUODENAL ULCER, SYMPTOMS AND DIAGNOSIS

BASED ON FORTY-SIX OPERATED CASES: 33 MALES AND 13 FEMALES

CHRISTOPHER GRAHAM, B. S., M. D.

Rochester

The basis of diagnosis of duodenal ulcer is the carefully developed history. Physical and laboratory findings are helpful accessories. In our series, pain was perhaps the most important symptom, and had some characteristics. It may be sudden, sharp, and severe, and be manifest to the right of the median line, but rarely radiates beyond the stomach and duodenal area. As a rule, it has decided relations to meals. There is, however, a small group in which food plays an unimportant part. It includes those cases where peritonitis, due to complete or partial perforation, gives the first symptoms, where there is no motor insufficiency due to either spasm or obstruction, and where the gastric contents is not above normal in acidity. Food most often gives relief for a time, the pain appearing from three to six hours later,—in other words, when the stomach should be nearly or quite empty. Pain appears daily, or several times a day, during the period of attack. In the great majority of cases it is entirely quieted or modified by food, drink, vomiting, irrigation of the stomach, and alkalies. Pain of duodenal ulcer cannot be due to food directly; it rarely comes sooner than two hours after food enters the stomach, and much oftener four or more hours later, and the kind of food usually plays an unimportant part, if we exclude salts, sweets, and acids.

The pain is due chiefly to two factors: 1. In this class of cases, it is due to peritonitis caused by a greater or less degree of perforation, and it stimulates gall-stone colic. 2.

Digitized by Google

This comprehends the greater number of cases, and the pain is due almost wholly to the irritant action of the acids on the open ulcer, with the added element of spasm. The greater the quantity of the liquid in the stomach, and the higher the degree of acidity, the more severe the pain; in other words, intensity of pain and degree of acidity run about parallel. The irritant action of the food as a cause of pain by passage over the diseased area cannot enter into the question, because anything that diverts, dilutes, neutralizes, or removes the acid liquid, lessens or entirely relieves the pain. Food and drink, by diverting and dilulting, bring relief; antacids as a rule are quieting for a time and remove nothing; vomiting or irrigation of the stomach relieves by removing the offending acid, but no rough particles of food which could irritate are found so long after a meal in either vomitus or washings, and both are as a rule abundant. Tender spots are not infrequently found and when present they are to the right of the median line in the duodenal, gall-bladder, and pyloric area. Posterior tenderness was seldom demonstrated.

Vomiting was a prominent symptom in our series, 32 giving it important mention. The chief points of vomiting are the time, the form, and the kind; that is, first, whether soon after taking food or deferred quite late, and, second, whether of small amounts and regular or only occasionally, or whether more or less irregular and quantity large, and, third, whether food is vomited as taken or only eructation of hot water, small, sour, bitter amounts, intensely acrid, and large amounts or quantities of half digested, macerated foods. In these cases vomiting was as a rule delayed, irregular and acrid, not much food contained in it except when obstruction had obtained in a decided degree. The quantity varied, it being decidedly abundant in the latter. Relief comes through vomiting, and the patient often induces vomiting to quiet distress or intense burning pain. When there was a history of hypersecretion the amount was usually large, and digestion well advanced. In other cases the amount was small if obstruction was not pronounced. The

Digitized by Google

characteristics of vomiting in these cases seem to be, coming later after food, acid liquid or liquid food well digested and more or less irregular in time, and relief following evacuation of the stomach.

Gas is also an equally important symptom here, and seems to be at its height when acidity, pain, and vomiting are ascendant; and relief by food and drink comes to gas-formation quite as frequently as it does to pain. We feel sure that gas is more prominent as a symptom in ulcer of the duodenum or pylorus than in ulcer at any other location, and certainly it should be, as gas-formation is first to herald motor insufficiency of whatever nature, and in this position slight narrowing would soon demonstrate its presence, and spasm could easiest here become effective. Acidity beyond normal is the rule, and was excessive in 13 of 24 cases, and this increased acidity is a frequent cause of gas-formation. Dilatation was much more often found than normal capacity.

A very large proportion have good appetites, nay more, most of them have keen food desire, and only pain, gas, vomiting, and acidity prevent sufficient food intake. Many are found undergoing voluntary dieting, but more often fail to secure that relief which usually comes to those whose trouble is of the stomach proper. We certainly expect the appetite to be good in cases where the digestive juices are normal or abundant, and this is the rule in duodenal ulcer. Constipation is a common symptom, and was most bitterly complained of by one-fourth of the number, four charging most of their trouble to this.

Bleeding of duodenal ulcers is common, and may be characteristic. It led to a diagnosis in one case when the passages were frequently dark and tarry or even bloody, and no pain was experienced. Twelve reported blood either by vomit, stools, or both, and in four instances it was found at test-meal, when not otherwise mentioned.

Latency of duodenal ulcer has been often demonstrated, and it is believer to be much more common than latency of gastric ulcer. It would seem that three factors influence

Digitized by Google

latency: first, if acidity is low or not above normal; second, if no motor insufficiency be present; third, if perforative peritonitis has not taken place. Under these circumstances there will be no pain, no gas, no vomit, and the pathological condition will go unrecognized by the patient, and of course by the clinician unless hemorrhage reveals the true condition. These factors have weight if the ulcer locates itself at or near the pylorus or along the lesser curvature. These latent gastric forms are prone to heal, and cancer may quite as readily follow in their wake as in that of the chronically open ulcer.

The 46 cases are placed in five groups, the division being made in the light of the operative findings.

The first group contains 4 cases, with a history of stomach or gall-bladder type, or both, for periods of from 4 to 21 years, and came to the hospital with acute perforation of chronic ulcer. Of these, one was referred to us as acute perforative appendicitis and our diagnosis was gall-stones with recent rupture of the gall-bladder; a second was sent to the hospital for ruptured gall-bladder, and a differential diagnosis was made on three points,—(a) a history of from fifteen to eighteen years of bitter trouble from *gas-formation* two to six hours after meals, (b) large amounts of morphine necessary to control the pain (of perforative peritonitis), (c) mass, tenderness, and rigidity well to the right. Of the other two cases, one was diagnosed gall-stones with perforation, and the other reached the distinction of being called either perforated gall-bladder or perforated duodenal ulcer.

Group two consists of one case of chronic repeated hemorrhage from the bowel over a period of three years, with repeated acute bleedings for four weeks previous to admission, and for which he was operated upon. In this case the correct diagnosis was made from the hemorrhages, for the stomach symptoms were among the mildest of the whole class.

In the third group there are 25 cases. Nine had separate ulcer in the duodenum and stomach; in 16 the ulcer was con-

Digitized by Google

tinuous from the duodenum to the pylorus, rarely to the stomach. Of this number, 16 were diagnosticated ulcer of the duodenum or pyloric end of the stomach, the diagnosis in many cases favoring the duodenum as the probable seat. Pain, vomiting, gas, acidity, dilatation, constipation, and appetite characteristic of ulcer of the duodenum (or pyloric end of the stomach) predominated, the degree of the attendant motor insufficiency measuring in most instances the severity of the symptoms. In eight of the cases under group three the symptoms were such that a diagnosis of "ulcer or gall-stones" was made. Tenderness to the right, and sudden attacks of pain, more or less irregular, were experienced. Definite signs of motor insufficiency, often lasting only a short time, were clearly present. However, the whole "symptom complex" seemed not incompatible with either gall-stones or duodenal ulcer or both. Another of this group was diagnosticated gall-stones a year previous to operation, and the diagnosis was not changed when she entered the hospital, though stomach symptoms had developed the last four months.

Under group four, we find eight cases of chronic perforation. One of these had been diagnosticated gall-stones and operated upon a few months previous with negative findings; finally ulcer was decided upon and a gastroenterostomy gave relief. Two others were sent into the hospital with a diagnosis of cholelithiasis, and only ulcer found. Another in which the diagnosis of gall-stones had been made three years previously, presented symptoms of ulcer so decided that a diagnosis of probable duodenal involvement was made. Both gall-stones and ulcer were found. The remaining four cases had severe spells that in the present light would indicate perforative peritonitis. They gave decided symptoms of gastric disturbance, with temporary periods of motor insufficiency, accompanied by more or less dilatation, and were fairly diagnosticated ulcer with only a suspicion of gall-stones.

Group five includes eight cases that were purely duodenal. Most of these came with the history that in earlier

Digitized by Google

years the trouble had been diagnosticated gall-stones. In one case, a year previous to a duodeno-duodenostomy, which gave perfect relief, an operation upon the gall-bladder had been negative. Six of these cases, however, when they came to operation, had besides the gall-stone-like colics, the pain, vomiting, gas, acidity, dilatation, and constipation (with few exceptions of above symptoms) characteristic of duodenal ulcer with motor insufficiency. The insufficiency would appear to come by spells, and seemed to be due in some cases, at least, to spasm only. A history of blood was given by three. Likewise in this group, gall-stones entered largely into the diagnosis. Ulcer of the pyloric end of the stomach was not precluded in most of the cases. In one, where the complaint covered 30 years, the last three constant but not severe, where burning rather than pain came one to three hours after food; and constipation was severe, the diagnosis of ulcer was made. Gall-stone history was entirely negative. Vomiting, gas, and acidity were absent or but little emphasized. The diagnosis rested on (a) burning in the stomach, worse two hours after food; (b) marked dilatation and emaciation; (c) constipation, and perhaps foremost of all (d) length of time (30 years) the condition was complained of, and (e) its appearance in decided spells. In this group the time of the trouble ranged from 5 to 30 years.

Are there any characteristic symptoms of duodenal ulcer? If we try to differentiate between ulcer at or near the pylorus and duodenal ulcer, we meet barriers that are yet well-nigh insuperable. Often the two conditions are associated, and then the certainties of a diagnosis are quite beyond us. However, when the duodenum is involved, the pain, gas, acidity, and vomiting are, as a rule, more intense than if only pyloric ulcer (gastric side) is present, and the type of pain is more apt to approach that of gall-stones. From ulcer situated in other parts of the stomach, the differentiation usually presents fewer difficulties. In the latter condition, pain and vomiting come sooner after taking food, and the food is returned much as it is taken. Acidity is

Digitized by Google

not so great and is often not noticed; gas, if present, is rarely so annoying a symptom; and blood is perhaps oftener found in the vomit.

It will be seen that cholelithiasis was the chief error into which we fell in our diagnosis, and practically it is the only trouble worthy of consideration in making a differential test.

Pain in cholelithiasis is oftener sudden, severe, has a wide field of radiation, comes absolutely irregularly, is independent of and is not eased by food, nor so often traced to it. No stomach history is given between the short, precise spells; spasm of the diaphragm is nearly always observed; and vomiting and gas are present only during the attack, and the relief through vomiting and gas-eructation is not as certain. The vomit is usually scanty, yellow, and bitter, and acidity is extremely rare.

In duodenal ulcer the pain comes in decided periods of attack, may be and often is sudden, has a very limited field of radiation, may be irregular as to time of separate attacks, but regular as to periods. It is quite dependent upon food, being early eased, and later pain and distress appear. The history of gas, vomiting, and acidity runs parallel to the periods of pain. No spasm of the diaphragm occurs except in some cases of perforation. The vomiting and belching are usually decided in quantity and quality and followed by relief.

Of course, stone in the common or cystic duct, or a decided infection of the gall-bladder, acute or chronic, has a definite period of attack; but jaundice, an enlarged gall-bladder, chills, and fever with other symptoms, usually give little uneasiness in diagnosis. Acute infection of the gall-bladder and perforation of duodenal ulcer are often so nearly identical as to pain, palpation, and location, that gall-stones is the commoner diagnosis in either case. A careful history will be the great weapon of defense—the only means of differentiation. Here let me say that the clinician who has the greatest skill in developing exact histories, and has judgment to arrange them, will be the one to make the most ac-

Digitized by Google

curate diagnosis, and will usually find other methods quite unnecessary, if not wholly superfluous.

The day of duodenal pathology has scarcely advanced to dawn. The diagnosis is indeed difficult, but treatment approaches solution. Fifteen years ago the internist and surgeon alike stood helpless beside the diseased appendix; ten years later both were writing and talking intelligently, and diagnosis and operation were generally well made. To-day a large percentage of cases come to the surgeon, and the diagnosis is made, and made accurately, by the patient himself. So too, in gall-bladder surgery, during the last ten years much has been written, and numberless operations reported, so that gall-stone, *per se,* has been robbed of both its operative and diagnostic terrors, and the surgeon at large finds such operations to his credit. However, the surgeon who will face every gall-stone diagnosis and be master of the occasion, must be schooled in the surgery of the stomach, duodenum, and pancreas, or his record of failures will be most discouraging.

There will always remain a certain proportion of cases that will mislead the careful physician. Those gall-stone cases where the stomach symptoms of gas, distress, sour, belching, and dilatation predominate, and pain is but little complained of, (and that only of a dull character), will usually be diagnosticated ulcer, while the duodenal case whose chief symptom is the sudden, sharp, intense pain of perforative peritonitis, and where, with no obstruction or hyperacidity, the other stomach symptoms are in abeyance, will fall to cholelithiasis. Such error in diagnosis does not militate against the clinician, as both conditions are purely surgical, and the differentiation in many cases must be made on the operating-table.

Digitized by Google

THE ETIOLOGICAL RELATIONSHIP BETWEEN CANCER AND ULCER OF THE STOMACH

GEO. DOUGLAS HEAD, M. D.

Minneapolis

That cancer of the stomach may be engrafted upon the base of an ulcer or its scar has been established by the reported cases of many observers. Hemmeter ("Diseases of the Stomach," page 570) states that Kollmann has collected 14 cases and that about 14 more have been reported in the literature. Futterer (Jour. A. M. A., March 15, 1902), who has made a most careful search of the literature, has collected 52 cases, including those reported by himself. Other cases not mentioned in Futterer's article have been reported by Billings (American Medicine, April 6, 1901), Kaufmann (Amer. Jour. Med. Sci., Vol. 127, No. 4, page 655), and Du Mesnil (Nothnagel's "Encyclopedia Diseases of the Stomach," page 570).

Granted that it is established beyond doubt that cancer may be grafted upon ulcer of the stomach, the frequency with which this combination of lesions exists is a question upon which there is much difference of opinion. On the one hand are those who take the view that cancer is only very rarely engrafted upon ulcer of the stomach.

Kollmann, in the Tübinger Clinic, states that in the last twenty years the combination of cancer superimposed on ulcer had not been seen.

Duplant of Lyons, in 1898, published a thesis in which he declared that it had never been proven that cancer of the stomach succeeded ulcer. On the other hand Zenker maintains that most cases of gastric carcinoma originate in an ulcer base.

Digitized by Google

Futterer (Jour A. M. A., March 15, 1902) concludes that a large percentage of gastric cancers have a beginning in ulcer or its scar.

Graham (Trans. Minnesota State Med. Soc., 1902, page 76) makes the statement that 88 per cent of the cases of cancer of the stomach in his clinic were preceded by a history of ulcer.

Dunn (Trans. Minnesota State Med. Soc., 1903, page 87) quotes freely from statistics showing the frequency of cancer superimposed upon ulcer, and states that such an event being common, surgical intervention is the best method of dealing with ulcer to prevent the formation of cancer.

Between these two extremes stand the great majority of pathologists and clinicians, who, while recognizing the existence of cancer superimposed upon ulcer, lay but little stress upon the ulcer per se as an etiological factor in the production of gastric cancer.

Rosenheim places the percentage at 6, Dittrich estimates the frequency at 5 per cent, Eppinger at 11 per cent, Haeberlin at 2-3 per cent, Van Valzah and Nisbet at 5 per cent.

The importance of this subject cannot be overestimated. If cancer of the stomach is engrafted upon ulcer in any such percentage as stated by some writers (88 per cent by Graham), then it is the duty of the internist and general practitioner to advise the surgical removal of all ulcers of the stomach for fear of a later developing carcinoma. If, however, these high estimates are not borne out by a more careful study of the subject, then gastric ulcer can be safely treated as it has been in the past, and the services of the surgeon reserved for those cases complicated by pyloric stenosis, dangerous hemorrhage, perforation of the stomach or duodenum, obstructive adhesions, and the like.

In this paper the writer has endeavored to gather together evidence which bears upon the solution of this question. Turning first to the post-mortem records we

Digitized by Google

ask what knowledge can be gained from this source. Here we encounter a difficulty which makes the evidence furnished by the pathologist of little value. All forms of gastric carcinoma, except scirrhus, break down and ulcerate. Such ulceration appears early in some carcinomata, and late in others. Sometimes the neoplasm becomes entirely disintegrated, and the surface of the ulcerative process is smooth and level.

To determine in a given case at autopsy whether the carcinoma is primary and the ulceration secondary, or the ulcer primary and the carcinoma engrafted thereon, is very difficult, if not in many cases impossible. The secondary ulceration encountered in carcinoma is said to be distinguished from ulcer with surrounding cicatricial tissue in that its edges are raised and have rampart-like borders.

Hauser (Das Chronische Magengeschwur, Leipzig, 1883), who has carefully studied the pathology of the subject, gives as the distinguishing feature that in primary carcinoma there is never a sharp division between the muscularis and the tissues at the basé of the ulcer, while in primary ulcer the muscularis turns up diagonally toward the mucous membrane.

Futterer agrees with Hauser as to the behavior of the muscularis, but says that where the carcinoma infiltrates the ulcer there is a fish-hook-like upward bend of the muscularis.

Wm. Welch ("Pepper's System of Medicine," Vol. II, page 536) sums up the pathological evidence in these words:

"It is difficult to prove anatomically that gastric cancer has developed from an ulcer." "No etiological importance can be attached to the occasional association of cancer with open or cicatrized simple ulcers in different parts of the same stomach."

It seems fair to assume that where a small carcinoma is found at post-mortem infiltrating a part of the border of an ulcer of the stomach a bona fide example exists of

Digitized by Google

carcinoma engrafted on ulcer. But the number of such reported cases is too small to prove the point at issue without admitting the possibility of a coincidence. However, even though the macroscopical or microscopical appearance of an ulcerative process in the stomach wall cannot furnish conclusive evidence as to whether the ulceration is primary or secondary, the post-mortem records do give us some suggestive facts bearing upon the question under discussion. If cancer is superimposed on ulcer, then cases of cancer of the stomach in young persons, in which class ulcer is common, ought to show an increased percentage of cases of cancer beginning in ulcer. Osler and McCrae ("Cancer of Stomach," 1900) have collected 6 cases of gastric cancer in the first decade, 13 in the second decade, and 6 in the third decade. In not one of these 25 cases is there any mention of pathological evidence going to show that the cancer grew upon an ulcer base.

If cancer is often engrafted on ulcer the post-mortem records will show the greatest percentage of ulcers located in the same regions of the stomach where the greatest percentage of cancers are located. Welch, in 793 ulcers of the stomach where the situation of the ulcer was recorded, located the largest number, 36.3 per cent, in the lesser curvature, while in 1300 carcinomas of the stomach only 11.4 per cent were at the lesser curvature. Twelve per cent of the ulcers were at the pylorus, while 60.8 per cent of the cancers were located in this region. On the posterior wall of the stomach 29.6 per cent of the ulcers were located, against 5.2 per cent of the cancers; on the anterior wall of the stomach were 8.7 per cent of ulcers against 2.3 per cent of cancers; at the cardia 6.3 per cent of ulcers against 8 per cent of cancers.

To summarize: the pylorus comes first as the most frequent seat of cancer, but comes third as the seat of ulcer. The posterior wall comes second as the seat of ulcer, and fourth as the location of cancer. The cardiac end is third as the seat of cancer, and fifth as the location of ulcer.

Digitized by Google

If ulcer were a prominent etiological factor in the production of cancer we ought to find the most cancers growing from the lesser curvature rather than the pylorus. From this pathological evidence there seems to be no relationship between ulcer and cancer of the stomach, when studied from the standpoint of location in the stomach wall.

The post-mortem statistics give further evidence bearing upon this question. If carcinoma were commonly engrafted on ulcer, one would expect to find cancer predominating in the sex in which ulcer was most frequently encountered. The post-mortem records, however, show as follows:

In 1699 cases of ulcer collected by Welch, 40 per cent were in men and 60 per cent in women; of 2214 cases of gastric cancer 55 per cent were in men and 45 per cent in women. Fox and Ledoux-Lebard found cancer of the stomach equally in men and women. Reiche (Deut. Med. Wochenschr., 1900, XXVI, No. 708) in statistics from Hamburg found cancer of the stomach in 56 per cent of men and 44 per cent of women. In Osler and McCrae's series of gastric cancers 81 per cent were in men, and 19 per cent in women.

These facts do not accord with the idea that ulcer plays a prominent part in the causation of cancer, since women who have the most ulcers have the fewest cancers, while men who have the most cancers have the least number of ulcers.

In this connection I wish to call your attention to Futterer's records of his collected cases showing cancer engrafted on ulcer. Nineteen were in women, and 24 in men. The figures do not correspond at all with the frequency of ulcer as seen in men and women, but do correspond almost exactly with the frequency of cancer as met with in men and women. Is it not probable that most of the cases collected by this writer were in reality cases of carcinoma of the stomach undergoing secondary ulceration?

Digitized by Google

Turning from the consideration of the pathological evidence to that offered by clinical study, we find still other facts which are helpful in coming to a conclusion. Ulcer being a disease of early adult life, if the engrafted cancer idea were correct, we should expect to find in cases of cancer developing before 30 years of age a large percentage giving a history of preceding ulcer. On the contrary, the two prominent features of the reports are a rapid onset and acute course without previous stomach trouble. Of Mathieu's 19 cases under 30 years the average duration of the disease was three months. Of Osler and McCrae's 4 cases in the third decade, not one was ill over six months, and in two the sickness was only of four months' duration. The onset in all but one was sudden, and gave no suggestion of a previous ulcer. All the cases were in men. The weight of this point in the evidence is nullified in part by the small number of cases reported.

The symptoms of ulcer are those of a chronic gastric trouble beginning in young adult life, and continuing off and on with remissions for years. In the decades of life where cancer is common the clinical study of the cases reveals almost total absence of the symptoms of ulcer, the sickness, as a rule, beginning acutely with nausea, vomiting, loss in weight, and the presence of a tumor in the abdomen in persons previously in good health.

Let us now turn to the clinical histories of those cases of cancer developing after 40 years of age, and ascertain what percentage give a history of previous ulcer. The studies of Osler and McCrae furnish the best evidence upon this point. Of the 150 cases of gastric carcinoma in which special attention was given to the securing of an accurate early history only 4 cases gave a history pointing to ulcer and the authors add, "in none could it be positively diagnosed." Many patients, however, with ulcer give none of the typical symptoms of this disease, but only complain of gastric distress or indigestion. It is, therefore, necessary to know what percentage of these

Digitized by Google

cases gave a history of any previous stomach disturbances. Of the 150 cases 107 gave no history of stomach trouble prior to one year before coming under observation. This is 71 per cent of the total number of cases, and is a strong argument against the theory that ulcer plays an important role in the etiology of cancer of the stomach.

Any patient with cancer of the stomach who has had, up to one or two years previous to coming under observation, no gastric disturbance gives little clinical evidence of gastric cancer superimposed on ulcer. His gastric symptoms in most cases must be due to the beginning of the cancer itself.

Ulcer of the stomach in a vast majority of cases is a disease of young adult life; carcinoma of the stomach is a disease of advanced life. Where cancer is engrafted upon ulcer the vast majority of cases give a prolonged history of gastric trouble lasting over years and terminating in cancer. It may be possible in some few cases for an acute ulcer to immediately develop carcinoma within a year, but such is certainly not the rule. Graham states that in three of his cases of gastric carcinoma the history of ulcer did not cover two years.

Without more conclusive evidence than he has offered it seems more reasonable to consider these cases of short clinical history, not as instances of gastric ulcer with later developing carcinoma, but as primary gastric carcinoma from the beginning.

All writers of recent years agree that the great majority of patients with cancer of the stomach give no history of prolonged gastric disturbance. Ewald, Boas, Hemmeter, Osler and McCrae, Stockton, Riegel, and others give the same clinical picture; a sudden onset of the gastric symptoms in persons in previous good health. In only 33 of the 150 cases reported by Osler and McCrae was there a history of previous gastric trouble. In 17 of these the disturbance was confined to isolated attacks. Eleven of the cases had chronic gastric trouble

Digitized by Google

for years. In a series of 150 patients suffering from other diseases taken for comparison, 28 gave a history of old stomach trouble, only 5 less than the cancer series. There is therefore little evidence to be secured from the clinical history of cases of cancer of the stomach pointing to ulcer as a basis for the development of the disease.

All writers upon this subject agree that cases of cancer engrafted on ulcer usually show the presence of free HCl in the stomach contents after a test meal. Here we have a further standard by which to test the theory under consideration.

Riegel, speaking of cases of cancer succeeding ulcer, says such cases are characterized by normal gastric secretion, which may continue until death. They are distinguished by this symptom (presence of free HCl) from the majority of cases of ordinary carcinoma of the stomach.

Of Osler and McCrae's cases, 80 out of 87 in which gastric contents examination were made, showed a complete absence of free HCl. Granting that all the cases showing the presence of free HCl were of ulcer basis, only 8 per cent could be counted in the category of carcinomas engrafted upon ulcer. In the light of this evidence, therefore, the idea that cancer is commonly engrafted upon ulcer fails to be established.

The total mortality for cancer of the stomach is about 1.5 per cent of all deaths. Ulcer or ulcer scars have been found in about 3.32 per cent of all persons coming to autopsy. Ulcer and cancer have been encountered at post-mortem in different parts of the same stomach entirely isolated and without any apparent relationship each to the other. In view, therefore, of the evidence, clinical and pathological, at present at our command it does not seem reasonable for us to accept the views of those who believe that cancer of the stomach is commonly engrafted upon ulcer. The writer believes that the evidence is entirely conclusive, and that in the light

Digitized by Google

of the facts here brought forward it seems fair to conclude:

1. That cancer of the stomach is only exceptionally engrafted upon ulcer.

2. That such an event exists in not more than 6 to 8 per cent of the cases of carcinoma.

3. That ulcer of the stomach plays a very minor role as a predisposing factor in the causation of gastric cancer

Digitized by Google

SOME IDEAS REGARDING THE NATURE OF SYPHILIS

FRANKLIN R. WRIGHT, M. D.

Minneapolis

Syphilis is an organic, infectious disease which affects the entire organism. It begins at the point of infection by lesion peculiar to itself, and passes, after a definite period of incubation, to general symptoms, that show themselves in the beginning, principally as eruptions on the skin and mucous membrane, and may continue later as morbid changes in the different organs.

The cause or virus of syphilis is still unknown. Much time and study have been given to the subject by scientific men all over the world to ascertain the true cause of this disease, but thus far their investigations have been without reliable results. Careful and laborious investigators have announced from time to time that they have discovered the real cause of syphilis only to have their work entirely disproved by other investigators in the same line of research. Other scientific men have announced the discovery of certain changes in the blood characteristic of syphilis and of diagnostic value, only to have other observers point out the error of their investigations. Research along this line may differ only by lack of culture media.

The lower animals are immune to this disease. At the present time the living human being offers the only known material on which this virus, whatever it may be, will grow.

Syphilis is transmitted either by inheritance or infection. In order that infection may take place it is necessary that fresh infectious material, that is to say, the secretion from a primary lesion, moist lesion, or blood of a syphilitic person

Digitized by Google

be brought into direct contact with a wound, or, at least, a break in the epithelium on the body of a person free from syphilis. This transmission of infectious material may be brought directly about by a lesion on the body of a syphilitic person, or indirectly by contact with some object which has become contaminated by contact with such lesion. Though indirect transmission does occur, there can be no question but that the possibility of such infection is very small. The infectiousness of the virus of syphilis appears to be very short-lived, and very sensitive to variations of temperature; hence if indirect infection is to take place the transmission must be almost immediate; that is, before the contaminated article has time to dry or become cold. For example, it would be very dangerous for a non-syphilitic person to smoke the pipe of a syphilitic person, if the same were taken fresh from the latter's mouth; but if the pipe were to be laid aside until it had become cold before its use by the non-syphilitic person, there would be little if any danger in his using it. Even the dead bodies of syphilitic persons lose their infectiousness when they wholly lose the body heat. I am aware that post-mortem infections have occurred, but only when the post-mortems were conducted within a few hours after death, and before the body had become entirely cold, and while it still retained some vestige of animal heat.

The first period of incubation, or the time from infection until the appearance of the initial lesion, is one of quiescence, as far as external signs are concerned. This is not true, however, of the second period of incubation. The time between the appearance of the initial lesion and the appearance of the constitutional symptoms is marked by active changes in the lymphatic system, which, occurring as they do in regular order, indicate accurately the change of the infection, and are as absolutely diagnostic as the constitutional symptoms.

The initial lesion appears at the end of the third week. A week later, or at the end of the fourth week, the lymphatic glands in one groin begin to enlarge. This enlargement reaches its height one week later, or at the end of the fifth

Digitized by Google

week, so that a case presenting a sore and enlarged gland on one groin is five weeks old. During the sixth week the glands on the opposite side enlarge, so if the case presents enlarged glands on both sides it has reached the end of the sixth week, or is six weeks old. Toward the end of the seventh week, or at the beginning of the eighth week, the epitrochlear and cervical glands are to be felt. The constitutional symptoms appear with the end of the eighth week in the shape of an eruption on the skin, which may be macular, papular, or pustular, but is never vesicular in character. This eruption is distributed evenly over the sides, on the chest and abdomen, and on the extremities, showing predilection for the flexor surfaces. This eruption appears very rapidly, often coming out in a single night, certainly within a few days. It is not transitory in character, that is, it does not appear today and disappear tomorrow; neither is it permanent. If left to itself without treatment this primary eruption, which appears at the eighth week, will begin to fade out about the eleventh or twelfth week, and will disappear about the fourteenth week only to reappear about the twentieth week. The eruption of this relapse occurs on the same parts of the body as the primary eruption, but differs from it in that the individual lesions are larger, and manifest a tendency to occur in groups. This tendency to grouping becomes more marked with each relapse.

The mucous patch, the characteristic lesion of the mucous membrane, and the papule which develops about the genitals, particularly in women, are not a part of the primary eruption, but belong to relapse conditions. The mucous patch is usually the first, and often the only, indication that a relapse has occurred.

Alopecia specifica is another symptom belonging to the late secondary period. It may be so severe as to cause a loss of all the hair on the body. I have seen three such cases; however, its manifestation is usually limited to a thinning of the hair in the temporal and occipital regions. This condition begins about the fifth to the eighth month, and is somewhat slow of development, so that a well marked case

Digitized by Google

is at least of eight or nine months' duration. The return of the hair is slow, but ordinarily is complete at the fifteenth to eighteenth month.

Syphilis relapses in periods of about three months. The cause of these alternate periods of latency and activity is unsettled. Virchow believed that the organism is able to throw off the virus and rid itself of the disease, but that the lymphatic glands retain hidden foci which become active again as soon as the system at large has freed itself of the virus. Other observers believe that the cause of the alternate latent and active periods is that the life cycle of the virus is similar to that of the plasmodium malariæ. My own belief is that by growth of virus in the system a certain toxin or antitoxin is produced which checks or inhibits the growth of the virus, and brings about the latent period. During this latent period toxin or antitoxin is slowly eliminated. When the elimination has reached a certain point the virus becomes again active. With each relapse a small portion of toxin or antitoxin becomes permanent in the body. When this gradual accumulation becomes sufficient relapses fail to occur, and we say the disease has run its course.

Digitized by Google

THE IMPORTANCE OF ANTE-PARTUM EXAMINATION

FREDERICK LEAVITT, M. D.

St. Paul

The following remarks are not new. They aspire to be nothing more than reminders of some of the things we all know, have known, or at least ought to know. Shakespeare says: "If to do were as easy as to know what were good to do, chapels had been churches, and poor men's cottages princes' palaces." So it is rather the application of our knowledge, and not the "know-how," that really serves us. We are apt to be too easily satisfied in our investigations, and form conclusions in the conduct of our cases which not only lead us into trouble sometimes, but reflect discredit on our professional ability. "What is worth doing at all, is worth doing well," is an adage that should never be forgotten for a moment, if we expect to attain our fullest possibilities. Pardon the moralization.

The objects of the ante-partum examination are to ascertain (1) if pregnancy actually exists; (2) the probable date of labor; (3) the viability of the fetus; (4) the diagnosis of the presentation and position; (5) the patient's general condition, and her reproductive organs in particular, including the mammæ; (6) her pelvic dimensions; and (7) the obstetric prognosis.

In first pregnancies the pelvis should be measured before the twenty-eighth week. External diameters being found ample, further measurements may not be necessary. But if we find indications of contractures or deformities, a careful internal examination should be made, not even hesitating to anesthetize our patient if thoroughness demands it. With multiparous women who have undergone uneventful labors,

Digitized by Google

such measurements are not so essential, although the size of the fetal head should be estimated a few weeks before confinement.

In order that we may learn as much as possible from the first examination of our patient, we would do well to follow some definite routine. The order of examination recommended by Edgar in his recent work on obstetrics is as follows: 1. Determination of general conditions. 2. Location of fetal back and small parts. 3. Palpation of the lower fetal pole. 4. Palpation of the upper fetal pole. 5. Location of the cephalic prominence. 6. Deep pelvic palpation. 7. Locating anterior shoulder. 8. Location of the fetal heart. 9. External pelvimetry.

As illustrating what ante-partum examination may reveal, attention is called to differential diagnosis between pregnancy and conditions which may simulate it. Rarely we may have non-pregnant enlargements of the uterus due to accumulations of blood or water or pus within the uterine cavity. Chronic metritis, subinvolution, myoma and fibroma, congestive hypertrophy—these may all sometimes lead us to suspect pregnancy. Even more frequently the uterus is normal in size, but pregnancy may be simulated by extra-uterine conditions, like increased abdominal fat, fecal accumulations, ovarian tumor, ascites, pelvic hematocele, retroversion, and retroflexion. The ante-partum examination enables us to discover diseases and anomalies of the vulva and vagina; dystocia of the expulsive forces, dystocia of the generative tract, such as contracted and distorted pelves and marked malformations of the fetus, like hydrocephalus. Certain conditions of the mother demand earnest consideration, such, for example, as albuminuria, marked heart lesions, chorea gravidarum, pernicious vomiting, placenta previa, phthisis, etc.

Spurious or imaginary pregnancy is a condition with which nearly every physician, sooner or later, will be confronted. As a rule it is only women who intensely desire children or those passing the menopause, who fear they may be pregnant, who imagine themselves in this condition,

Digitized by Google

that is, for any length of time. The symptoms are mostly subjective, though there may be marked increase in the size of the abdomen due to deposition of fat or the existence of tympanites or possibly ascites. Women may even imagine that they feel fetal movements. Not long ago a young woman came to me with her mother for the express purpose of engaging my services for an event thought to be not more than a few weeks distant. When questioned she asserted that fetal activity had been very marked for several months. Examination proved that the patient was not pregnant.

In displacements of the uterus retroflexion is charged with being one of the most frequent causes of spontaneous abortion. When not adherent, the displaced uterus will usually correct itself during the second or third month, and having once passed the promontory of the sacrum recurrence is hardly possible. Retroversion is said to give rise to more serious symptoms than retroflexion, and, when marked, nancy continue under such circumstances the enlarged uterus becomes impacted, and we have what is known as inspontaneous reduction is not likely to take place. If pregsure must be associated, such as pain, interference with micturition and defecation, inflammatory adhesions, rupture of the bladder, and even gangrene.

We should suspect retrodisplacement of the uterus in women who, in the early months of pregnancy, complain of long-continued, frequent, and painful micturition. Bimanual examination will discover the soft body of the uterus occupying the pelvic cavity, the cervix being forced up against the symphysis above.

When observing the general condition of the patient, we should note any evidences of blood changes, whether the lungs or heart or kidneys show diseased conditions, or if there be indications of syphilis or tuberculosis. The breasts and nipples should not be overlooked, for much may depend upon what is learned at this time of future lactation, and the possibility of nursing the offspring.

I would like to dwell on the importance the ante-partum examination assumes in my mind, but the few minutes allot-

Digitized by Google

ted will permit of only a "lick and a promise." To me the forewarning means forearming. If there be nothing to fear, why, then, we escape much; if we must meet the enemy we need not face him without first donning our fighting clothes. One can screw up his courage more securely to the sticking-place if he first know the demands likely to be made upon it. Even in breech cases, is it not of advantage to be prepared for it? A persistent occipitoposterior position may sometimes be corrected by posture, at least the expedient may well be tried.

Ante-partum examination should aid the physician materially in prognosticating the character of the labor, and there can be no question but what it makes things more bearable for the parties concerned to know whether a given case is likely to be long or short, difficult or easy. To deliver a twin without suspecting its presence brings confusion that might have been obviated by the preliminary examination, for dual pregnancy is not difficult to diagnose.

Pelvimetry, particularly external pelvimetry, is in no sense intricate, and, besides the information we receive thereby, the impression on the patient is wholesome and reassuring.

A vaginal examination is imperative in all primigravidæ, and in others if there be the least suspicion of pelvic deformity. By it we are able to confirm the diagnosis made through the abdomen, and, in addition, we ascertain the condition of the soft parts, the possibility of placenta previa, and the size of the pelvis.

As to the relative value of the two examinations, abdominal and vaginal, both are invaluable, yet if I were permitted to make only one, my choice would be the former, i. e., external examination. It is interesting and instructive to note the testimony of obstetricians throughout the country as to the advantages of abdominal examination as contrasted with the disadvantages and dangers of infection from the internal examination. Edgar of New York, Williams of Baltimore, and others tell us that in a large obstetric practice they are accustomed to confine many of their patients with-

Digitized by Google

out finding it necessary to make a vaginal examination during parturition; and, furthermore, that such cases are practically free from puerperal morbidity. Some go so far as to say that vaginal examinations during labor do more harm than good, and that many lives are needlessly sacrificed thereby.

If it be necessary—and surely it is necessary now and again—to examine through the vulva during labor, then let it be done as cleanly as possible. It was a long step forwards in the practice of midwifery when physicians learned the value of immediately repairing the lacerated parts; it will be a much longer and more important step when they invariably apply surgical cleanliness to every case, and fully realize that infection comes from without and not from within the parturient canal.

DISCUSSION

Dr. W. F. Cobb (Lyle): This was a very interesting paper, and emphasizes the fact that the making of these antepartum examinations are a necessity. It may be very wise and beneficial to physicians in the cities, but I want to say when you get out as a country practitioner and among people who live a good way from the doctor, and have to ride all over the country to get to your patient, that the doctor living under those circumstances and conditions would not do much of this antepartum examining. I agree with him that it is very practical and very nice under proper conditions, but take it among our people in the country, many of them are not able to pay the doctor for doing this kind of work. If our patients were all millionaires they could afford it. Many of them will not call a doctor at all; many of them are poor; and you will find even in the cities that they will not call a doctor unless absolutely obliged to do so, but will call in some old lady, or get along without anybody, and do the best they can. There might be more said on this subject, but I do not want to take up the time. As a country practitioner I want to say that I know this work is almost impossible to be done in the country, and unless we take pains to educate our people on these points we shall not be able to practice this line of work.

Digitized by Google

SURGERY IN GENERAL PRACTICE

W. ALBERT GERRISH, M. D.

Enderlin, N. D.

This subject is of the keenest interest to a large percentage of the profession, and, though unappreciated, is of vital importance to the laity. It may be looked at from several points of view, and presents a number of pertinent questions, viz.:

1. Is the general practitioner justified in undertaking other than emergency and minor operations?

2. Can a room in a private house be rendered aseptic?

3. Can an aseptic technique be carried out in such a room?

4. Are the conditions at home favorable for the satisfactory control of the patient and his recovery?

5. Is the "personal equation" of greater moment than in hospital work?

6. Can results be obtained which will compare favorably with those of standard hospitals?

After seven years of "surgery in private homes," preceded by one year as hospital interne, I am enabled to answer that it is possible to obtain results which equal those of our leading hospitals. This experience would suggest the following answers to the questions enumerated:

1. If the general practitioner has sufficient skill and experience to successfully perform similar operations in a hospital he is certainly warranted in operating in the home. Otherwise, due respect for human life imperatively demands "hands off" no matter where he may contemplate operating. It may often be necessary for one to operate in emergencies, knowing himself to be unqualified; and conditions may arise

Digitized by Google

where the merest tyro will be forced to attempt most difficult operations.

2. A private room may be rendered aseptic with comparatively little effort. A method which has proven very satisfactory and which I have never seen in print, is as follows: Have the nurse remove the carpet, furnishings, and surplus furniture, scrub the floor and wipe down the walls with bichloride solution. The day previous to operation, fumigate the room with formaldehyde, using 12 ounces of the 40-per-cent solution to each 1,000 cubic feet, leaving the room closed eight hours, and airing it out until the time to warm for operation. Necessarily, if a trained nurse is not to be had for the case, it means a little "nurse-work" for the operator and his assistant in the cleansing of basins and other appurtenances. In most cases it is easy to obtain the services of one of the women present for scrubbing of basins, etc., the operator or assistant applying pure lysol freely, wiping the whole surface with a sponge held in a holder or forceps. A simple rinsing in sterile water completes the sterilization. The family will have been instructed to prepare plenty of sterile water, hot and cold. It is necessary to give explicit instructions, or you are liable to find them testing the temperature of your cold "sterile" water by sticking the finger or whole hand into it.

3. With the preparations outlined, and the usual technique at operations, there is, in reality, a greater likelihoood of asepsis being obtained than in regular operating-rooms, for the following reasons: (a) Fewer hands touch the field, and handle instruments, sponges, etc.; (b) There is not the probability of septic surroundings necessarily attending hospitals where pus cases and dressings constitute a large part of the work done.

4. Without exception we have been able to control our patients, and we find that recovery is prompt, and the convalescence happy and uneventful.

5. The "personal equation" which counts most in "home surgery" is an aptitude for *work,* as cleanliness is far ahead

Digitized by Google

of godliness for the time being, and cleanliness means work.

6. Our results, obtained under the methods outlined, have been pleasing to us, satisfactory to our patients, and compare favorably with those of our large hospitals. In no clean case has infection occurred, other than three cases which developed slight stitch abscesses. But few cases have proven fatal, and each of these probably would have died, no matter where operated upon. It is a strange coincidence that these latter were all emergency cases, and thus our legitimate prey; while the remaining cases, which are so often considered the personal property of "surgeons," made prompt recoveries.

The operations include those met in every-day practice, gynecology, and railroad work. No cases have been referred to others or refused operation, to reduce the death-rate. As a recital of cases would simply tire you, and prove nothing, I omit it.

Before closing I would call your attention to the possibility of getting trained nurses for little more, often less, than a hospital would charge for the care of the patient, and he enjoys the comfort of having a "special nurse," and is in a happy frame of mind—or ought to be—at home, surrounded by his family, yet with practically all the advantages a hospital could offer.

During my college training I was unduly impressed with the idea that it was little less than criminal for the general practitioner to contemplate, much less attempt, major operations, unless it were absolutely impossible to refer the case to one of the worthy professors, and that if the patient, by any chance, was successfully operated upon he had Providence to thank for the happy issue. While it is my intention to deride this absurd notion, I do not want to be misunderstood. No graduate, or licentiate, in medicine and surgery, without other experience than that gained in the average college, is justified in placing human life in jeopardy, without he first acquaints the patient or his family with facts as to his actual qualifications and experience. In case of doubt, it would be well to apply the surgeon's "Golden Rule"—

Digitized by Google

"Would you allow yourself to be operated on in a similar manner, by a surgeon with your own qualifications?"

DISCUSSION

Dr. F. A. Dunsmoor (Minneapolis): I had the honor of posing as professor of surgery at the University of Minnesota while the distinguished writer from North Dakota was there at college, and also had the pleasure of being associated with him as surgeon for the hospital in which he had his hospital experience. I have to agree and disagree with him. I agree when he values the personal equation, whether swinging the baby, taking out gall-stones, or doing an operation for hernia. There is no man in the country or in the city doing general practice who can be so well equipped as he who is trained in and for a special department, whatever that may be, whether it be eye or ear, obstetrical work, neurotic work or straight surgery. It is the training he gets that counts, and it does not make any difference whether he has to take the hired girl out in the country as an assistant, if she is trained, and it comes down to using the dish-pan for a sterilizer, it is all in the training. He writes about cleanliness of the general practitioner. If the general practitioner is a busy man he has got to be exposed to all sorts of contamination. He has got to see diphtheria, smallpox, scarlet fever and every infectious disease to which he may be called. The theory, which the doctor advances that the person who is doing general work is as competent to do the work as the specialist, is not a true one. You might as well say that about a piano player. If doing business in a general way one could not be an expert pianist. I have been practicing medicine longer than the doctor is old. In my first years of practice I operated upon eye cases, but if a person came to me to-day to be operated on for cataract I should consider the advantages of the eye specialist, and refer the case to him, but when I operated for cataract there was not a specialist in Minneapolis to do it. I do not believe that Dr. Gerrish will advocate that the average farmer's home as a rule is the best place to do surgery. His theory about the comfort to the patient is all right. There is not one of us but what would prefer to be in our own homes when ill, but the place to go for surgical operation is to the hospital. In the first place we can on order immediately obtain all needed things; we have trained nurses to wait upon us in the hospital, we have resident assistants who are competent and we can rely upon the integrity of the employes of the hospital; but in the home we must be wholly dependent upon untrained help. Now to go back, it is a question of training, it is the question of the ability and experience of the individual. There is no one person who can be an expert in all of the departments of medicine, and if

Digitized by Google

he is an expert in surgery he must be an extraordinary man to keep up his surgical training, and take care of a busy general practice. As regards the advantage of the home influence, I am in favor of it during convalescence. As soon as the patient is able to get on his feet, let him go home in order to get more congenial surroundings.

DR. L. F. SCHMAUSS (Mankato): I can subscribe to everything that Dr. Dunsmoor has said except the reference to home comforts. They may be a benefit, and they may be a disadvantage. We can handle a patient more successfully in the hospital than we can in the home, where he is surrounded by friends that give way to every whim he may have. It is true that as soon as the patient is convalescent he should be sent home, but during a particular stage (immediately after the operation), he can be handled better in the hospital than at home. In a hospital they can keep a room clean because they are not handling pus cases in the same room. I do not think there is a first-class hospital that has not an operating-room and a dressing-room, so that claim falls altogether. Another point is, that it takes twice as long to operate at the home as it takes in the hospital, without considering the question of assistance and other facilities present. It makes such a commotion in the home many times that people will often back out. While I thoroughly agree with the doctor that the house can be made aseptic and clean enough, the practice should never be encouraged, because of the difficulty and length of time required to perform the operation. I think the stand he takes is a dangerous one, and should not be applied to general practice.

DR. J. A. DUBOIS (Sauk Center): I wish to say a few words on this subject. I have been impressed, as the years go by and I have been engaged in the practice of medicine and surgery, with the broadening of the duty which devolves upon the general practitioner. I do not think the specialist in the city sufficiently understands or estimates the responsibility which rests and ought to rest upon the general practitioner. I think the specialists in the city have seen time after time cases sent from the country by the general practitioner which should have been treated by the general practitioner. The general practitioner cannot rid himself of the responsibility of a knowledge sufficient in surgery to perform a great many operations which must be performed by him or the patient's life risked. We have seen cases of appendicitis travel miles and miles for operation which should never have left their homes, and unless the general practitioner is capable of performing that operation he has yet something to learn. I do not say that the general practitioner should experiment with his cases or that he should perform certain operations which belong wholly to the specialist,

Digitized by Google

but he should be able to distinguish between the cases which should be sent to the hospital and to the specialist and those cases which should not be. He should also have another responsibility put upon him: he should understand enough of the signs to know when to keep people away from the surgeon's hands and when to steer them in. I do not think I am unjust in saying that the surgeon who looks through a surgical light, whose whole professional life has been spent in surgery cases, is apt to be a more or less biased individual, and cases come to him which he considers his legitimate practice when sometimes they should have been sent elsewhere. Who in the country is not familiar with gynecological work where cases go to the specialist for operation and come back to the country physician, and he finds his hands full of trouble in taking care of these morbid people? There is danger of carrying the surgical instinct too far. The future of the patient should be a matter of consideration by the surgeon or operator. The general practitioner should be an honest man and a gentleman. In a case of special work, send it to the specialist, and if your patient has a surgical fad, which is prevalent to some extent, try to direct him the right way if you can see that the future of the patient is not to be made better by an operation. The general practitioner should be able to perform operations, not the most intricate, and he should know when to send patients to the proper specialists, and when to keep them away from the specialist.

DR. R. C. DUGAN (Eyota): I do not think Dr. Dunsmoor gave Dr. Gerrish exact credit for the stand he took in his paper. I do not think he meant to contend that surgery in the country home would compare with that in the city hospital, and that he would have the work done at home altogether. I fully agree with him there. I do not think a case of appendicitis on the point of rupture should be sent two or three hundred miles for the sake of being operated on by a specialist. A great many country practitioners are not in a situation to get skilled surgery, except at a considerable distance. I think the point he makes that the general practitioner so far as cleanliness is concerned can keep himself just as thoroughly clean as the surgeon who handles all sorts of cases is a correct one.

DR. W. A. GERRISH (Essayist): Dr. Dunsmoor evidently misunderstands the stand I took in my paper. I did not mean to say that the country practitioner is an all-round specialist. There is only one man who takes that stand, and he is in the Twin Cities. If we wanted to commit manslaughter we would go into someone's abdomen in a case of smallpox, scarlet fever, etc. We are not so inclined. We are rather inclined to direct cases along special lines to specialists, but there is no reason why the ordinary surgical

Digitized by Google

work should be considered special. So far as chasing gall-stones is concerned, I can see no reason why the gall-bladder could not be drained in a private house as well as in a hospital, although we generally have to take the scrub-girl as an assistant. I still maintain they can scrub a vessel, and with pure lysol they can get all germs out of it. They can also scrub the floor, but simply as a matter of ocular cleanliness. You can use twelve ounces of formaldehyde, and absolutely sterilize that room. It will absolutely sterilize any room. When health officers say that ten ounces will do it twelve ounces will certainly sterilize a room. The doctor, over here, says they do not have pus cases in the same room. They operate on all sorts of cases. How is he going to be clean when he operates on a septic gall-bladder, and the next case is an anterior suspension, and the next may be a hysterectomy, and at the same time the pus is in the room, and we know dried germs are blown through the air, and are helped by some interne who assists in dressings. I have been there; I know what I am talking about, and one cannot get around it. Practically none of the hospitals in the Northwest can keep internes to do the clean work, and others to do the dirty work. I usually use gloves, but I often get holes in them. A man has no business, I don't care whether the operation is done in the City Hospital, at St. Barnabas, in the city of Chicago, or elsewhere, to attempt an operation for which he is not skilled. Only a short time ago I had two cases very near together which impressed themselves very strongly upon my mind. The first was an abscess of a ruptured appendix. This case had an abscess, and there was perhaps a pint of pus behind the cecum. We operated, and that abscess wall was so light that the gentlest touch of the finger in exploring broke the wall down, and we got our pus out immediately. We had an uninterrupted recovery. Suppose we had sent that man to the hospital. He would have died; he could not have stood the journey. A couple of days afterwards I was called to see a woman at midnight. She was taken sick about 8 o'clock. She had classical symptoms of appendicitis, and I advised operation. At 11 o'clock the next morning we removed the appendix. She had a gangrenous appendix, and if we had attempted to send for a special surgeon we should have lost the case. I could cite case after case where, if we had stopped to send for special help, we should have lost the patient. I still maintain that a man with requisite skill to perform operations can do this work. I do not mean to say that a man who can perform an appendectomy is an abdominal surgeon, but a man with the skill to operate in the hospital has a license to operate in any house, I do not care how small or how great, or how rich or how poor the people may be. (Applause.)

Digitized by Google

TUBERCULOSIS A PREVENTABLE DISEASE, WITH ESPECIAL CONSIDERATION OF THE DISTRIBUTION OF TUBERCLE-BACILLI AND THE USUAL AVENUES OF INFECTION

J. FRANK CORBETT, M. D.

Minneapolis

Tuberculosis is undoubtedly infectious. Isolation is impracticable. In order to prevent the further spread of this disease we must understand the distribution of the tubercle-bacillus and the usual avenues of infection. Baumgarten, in an article on immunity, says: "I have found that every guinea-pig and every rabbit is absolutely susceptible to infection by tubercle-bacilli. The size, age, nutrition and strength of the animal has no influence on result. * * * When bacilli are present in requisite virulence and number, infection invariably occurs."

That spontaneous tuberculosis is rare in guinea-pigs, in connection with the above emphasizes the importance of access to vital parts of virulent bacilli, and minimizes individual susceptibility.

In considering the distribution of tubercle-bacilli and other tubercle-like organisms, the most common are the grass bacilli, first mentioned by Petri. These include the species now known as mycobacterium lacticor planum and mycobacterium phlei. These organisms occur commonly in grass, hay, manure, milk, and butter. They stain the same as tubercle-bacilli, and on inoculation produce lesions somewhat similar. A guinea-pig inoculated with these will not die, but at the end of six weeks the viscera of the animal will present numerous nodules on the peritoneum and in the lungs. The structure of these nodules may be the same

Digitized by Google

as that of a true tubercle. If sterile butter be used as a vehicle in the inoculation the animal will die, and the lesions will be more marked. No giant cells are found. The bacilli themselves differ from the true tubercle-bacilli in that they grow readily at 20° C. Fresh colonies at first resemble colon. Cultures obtained from an infected guinea-pig when sown in artificial culture media present a wrinkled appearance, somewhat suggestive of tubercle-bacilli. The almost universal distribution of these may be shown by making a hay infusion, concentrating this and finding the bacilli on cover-glass by direct examination. H. Edwin Lewis reports a case in a milkman where he attributes a mild bronchitis to these organisms, which were demonstrated in the sputa. Moller, while working with grass bacilli, was taken ill, and expectorated masses of these bacilli.

Next we will consider the mycobacterium avium and mycobacterium piscium, or tubercle-bacilli of birds and fishes. These differ from ordinary tubercle-bacilli in that they grow best at, respectively, a high and low temperature. From a guinea-pig inoculated with bovine tubercle-bacilli and from another guinea-pig inoculated with human tubercle-bacilli, Pansini has obtained tubercle-bacilli that were pathogenic to chickens. Roger has inverted the same to animals. The same has been done with mycobacterium piscium. From the fact that by inoculation into an intermediate animal, and successive cultivation, we may change ordinary tubercle-bacilli into mycobacterium piscium and mycobacterium avium, it might seem probable that the acid proof bacteria of hay and manure were attenuated tubercle-bacilli.

As to bovine tuberculosis, we do not feel that at this time we should enter into any discussion. Suffice it to say that tuberculosis is prevalent among cattle. Osler states that in the Berlin abbatoir from 35 per cent to 80 per cent of all cattle killed were tubercular. In Minneapolis from 28,890 inspections of milk cows 1,342 were found to be tubercular.

To show the occurrence of human tubercle-bacilli in the neighborhood of consumptives I devised the following ex-

Digitized by Google

periment: A piece of gauze, 12 by 14 inches, was stretched over one of the ventilators in a tubercular ward. After 12 hours exposure the gauze was carefully removed, and rinsed in a beaker of sterile water. This was concentrated by means of a centrifuge, and showed almost 100 tubercle-bacilli. This was done in a public hospital where ordinary care was taken in disinfecting the sputa. Samples collected in a medical college and in one of our large public buildings gave negative results. Of 118 dust samples collected in hospital wards, etc., Cornet found 40 to be infected.

It has been estimated that a consumptive may expectorate about 1,500,000,000 tubercle-bacilli a day. If the sputum is not disinfected we can readily appreciate the danger from a single case. The existence of tubercle-bacilli in a public hall where all classes of people were allowed to expectorate on the floor, is demonstrated by the prevalence of tuberculosis among monkeys kept in a certain museum. It was my fortune to make post mortems of a number of monkeys that had died. These were invariably tubercular, although apparently healthy when brought there.

While tubercle-bacilli may be about us in large numbers, they are not always virulent. Kitasato has shown that many of the tubercle-bacilli thrown off by a consumptive are dead. There are also many natural agents at work to destroy them. From five to seven days sunlight will kill them, but this is not sufficient if the bacilli are dry. That tney may live for a considerable time is shown by Flick who found that 33 per cent of the tubercular houses had more than one case. Osler states that living tubercle-bacilli have been found in a room six weeks after the death of the consumptive. Tubercle-bacilli resist putrefaction for months. Galtier has demonstrated that earth-worms are capable of ingesting tubercle-bacilli, and excreting them again in living state.

We will now consider the usual avenues of infection. In 1898 Cornet exhibited before the medical society of Berlin 48 animals, 46 of which had become tubercular through being compelled to live in a glass chamber containing dried

Digitized by Google

tubercular dust. Whether these bacilli were inhaled into the lungs, and directly set up a tubercular process; or whether they were swallowed, absorbed by the lymphatics of the alimentary canal, and carried by the blood stream to the apices of the lungs; or whether they were taken up by the lymphatics of the mucous membranes, we can only conjecture. From the following data we might conclude that inhalation of the bacilli into the lungs was the cause. It has been demonstrated that it is possible for bacteria to be inhaled into the finest bronchioles. This was shown by allowing guinea-pigs to inhale a spray of bacillus prodigiosus. On post mortem a half hour later, the bacilli were demonstrated in bronchioles of lung. Hirschfield, in 30 cases of accidental death, found tubercular lesions in the bronchi which he held to be primary. These cases had died before any secondary involvement had occurred. A very few cases also showed primary mesenteric glands, but the vast majority were in the wall of the "posterior apical bronchus."

The usual point of infection in adults is in all probability the lungs. Biggs found tubercular lesions in the lungs of 60 per cent of post-mortem examinations on patients dying from all diseases. Hand, in "Archives of Pediatrics," gives a summary of 332 autopsies performed on children, and of these 34 per cent showed tubercular lesions. Seventy-five per cent of these lesions were primarily in the lymphatics of the respiratory tract. Northrop presents a series of 126 cases, all showing bronchial nodes in children. This is further illustrated by the prevalence of tuberculosis in institutions, such as prisons, etc. It is claimed that in various sanitoria where proper care had been taken of the sputa that no tubercular cases had ever developed. On the other hand, in general hospitals where the sputa of patients is allowed to dry and be blown about, new cases of the disease are not uncommon. In other series of 1,000 autopsies, 275 showed tubercular lesions; in lungs, 273; pericardium, 7; peritoneum, 36; brain, 31; spleen, 23; liver, 12; kidney, 32; and intestines, 65.

It is probable that the claim of Behring—that all cases

Digitized by Google

of tuberculosis are intestinal in origin—will not stand the test of time. If it does not, at least our attention has been called to an avenue of infection that of late has been given but little consideration. That intestinal infection is common we cannot deny. Woodhead's series of 127 cases of tuberculosis in children showed involvement of mesenteric glands in 100. Widerhofer found the intestines involved in 101 instances of 418 cases of children dead of tuberculosis. The bowel lesion was accompanied by lung lesions in 76 instances. The exclusion from swallowing the sputum in 25 per cent of cases is significant of food infection, and the absence of intestinal lesions in 35 out of 75 cases of mesenteric glandular involvement, points to the penetration of the intact mucous membrane of the bowel. (Hemmeter "Diseases of the Intestines.") The ability of the tubercle-bacilli to penetrate the mucous membrane of the intestines is shown by feeding tuberculous milk to animals. In the feeding experiments by Repp the proportion of successful implantation is 30 per cent with both tuberculous milk and tuberculous macerated meat.

Law, Bank, and Ernst in combined experiments had 70 per cent of successful implantation. In the feedings of Arloing (30), Nocard (5), Veyssiere, Humbert (100), Johne, Gerlach, and Peuch (45), we have an average of 45 per cent successful implantations. In Germany and Denmark it has been found that the feeding of slime from creameries resulted in the tubercular infection of the hogs.

Hiershberger inoculated rabbits in the abdominal cavity with milk of 39 tubercular cattle, in which the udders were sound. Tuberculosis was produced in 14 cases. A case is recorded where owner of herd finding a large proportion tuberculous withdrew milk and fattened pigs. Pigs almost without exception became infected. The Massachusetts Board of Health quarantined 13 animals, and fed the milk to previously tested calves. On post mortem the calves were found to be all tubercular.

In order to show that milk charged with bovine tubercle-bacilli can give rise to tuberculosis in the human body we

Digitized by Google

must prove that bovine tubercle-bacilli and human tubercle-bacilli are identical; or that bovine bacilli can become acclimated to human soil. That bovine tubercle-bacilli are more virulent to animals than human tubercle-bacilli there is very little doubt. That bovine tuberculosis is less virulent to human beings is not proven. There have been seven well authenticated cases of local inoculation of bovine tuberculosis on the skin of human subjects. They exhibited the same degree of virulence as local infection from human tuberculosis. In one instance the patient died of pulmonary tuberculosis two and one-half years after the infection. In another case the process extended to a neighboring joint.

The fact that tubercular patients give a more marked reaction with bovine tuberculin than with human tuberculin would indicate that bovine tuberculosis is more virulent for human beings.

In the experiments of Behring in the "Jennerization" of cattle it was found that cattle could be protected against bovine tuberculosis by vaccination with attenuated human tubercle-bacilli; that cattle often died of acute tubercular infection if too large a dose of human tubercle-bacilli was used; that small doses of bovine tubercle had much the same effect on cattle. From this it is apparent that the failure of transmission of human tuberculosis to animals may be attributed to a lack of virulence.

Dr. M. P. Ravenel, of the University of Pennsylvania, says that in northern Sweden, Lapland, Finland, and other countries where cattle are not kept, tuberculosis is rare. In Italy where people often live in close association with cattle tuberculosis is very prevalent. Cases of intestinal tuberculosis are common among Indians who eat raw intestines of cattle.

Dr. Demme records cases of four infants in the Children's Hospital at Berne, originally of good history and healthy, that died of intestinal mesenteric tuberculosis as a result of feeding milk of tuberculous cows. He excludes all other cases. A case is reported in Lowell where a child

Digitized by Google

fed on milk of a single cow and nothing else developed tuberculosis.

Following are tables showing the number of cattle condemned for tuberculosis since 1895, and also a table showing the decreased mortality-rate in children since inspection was inaugurated in 1895. Table showing the number of cattle examined for tuberculosis, and the number condemned in Minneapolis:

	Tested.	Condemned.	
1895	919	35	
1896	1,122	119	
1897	1,790	67	P M and lesions in all cases
1898	3,944	165	
1899	4,036	172	
1900	4,450	79	
1901	6,289	276	
1902	6,340	429	
	28,890	1,343	

Mortality-rate among children under five years of age, based on a census population of 164,738 in 1890, 192,833 in 1895, 202,718 in 1900, and an estimated population in 1903 of 235,000.

1890	2,460	1,275	51.82	7.73
1891	2,177	934	42.90	5.54
1892	2,258	976	43.22	5.66
1893	2,223	820	36.88	4.65
1894	2,069	784	37.89	4.36
1895	2,057	879	42.73	4.55
1896	1,917	691	36.04	3.54
1897	1,837	565	30.75	2.87
1898	2,052	668	32.55	3.35
1899	2,082	579	27.81	2.88
1900	2,188	625	28.51	3.07
1901	2,349	655	27.88	3.13
1902	2,108	538	25.52	2.50
1903	2,300	655	28.48	2.78

Table showing total number of deaths, exclusive of accidents and suicides, for twelve years, with number and rate of deaths from pulmonary tuberculosis, based on a census population of 164,738 in 1890, 192,833 in 1895, 202,718 in 1900, and an estimated population in 1903 of 235,000.

1890	2,460	231	9.39	1.40
1891	2,177	237	10.88	1.40
1892	2,258	233	10.31	1.35

Digitized by Google

1893	2,233	228	10.25	1.29
1894	2,069	243	11.74	1.35
1895	2,057	234	11.37	1.21
1896	1,917	215	11.21	1.10
1897	1,837	234	12.73	1.18
1898	2,052	257	12.52	1.29
1899	2,082	248	11.99	1.23
1900	2,188	240	10.97	1.18
1901	2,349	248	10.55	1.18
1902	2,108	244	11.57	1.13
1903	2,300	279	12.13	1.18

Congenital tuberculosis is rare, and only a few authenticated cases are reported. In 15,400 calves at Berlin only 4 were tubercular. The idea of congenital tuberculosis is based on 16,000 autopsies of Frobelius on sucklings with 461 presenting tubercular lesions.

Patients establish a tolerance to the toxins of tuberculosis. This is shown by constantly increasing doses of tuberculin borne by cases of lupus. By means of tuberculin Koch has rendered guinea-pigs immune to virulent tubercle-bacilli. From these facts is it not reasonable to suppose that the cells of an individual suffering from a slow form of tuberculosis, or of a patient who has recovered from a mild attack, would become somewhat tolerant to the toxins produced by tubercle-bacilli, and that this tolerance would be transmitted to the progeny? This is strengthened by the history of three cases suffering from local tuberculosis. These patients were placed in a badly infected tubercular ward, but did not develop pulmonary symptoms. On the other hand, new races are extremely susceptible to tuberculosis. This is illustrated by the negro population of Thomasville, Ga., where tuberculosis was unknown until the advent of the tubercular whites. Now the negroes are developing the disease to an alarming extent.

Osler has shown that Indians are especially prone to tuberculosis. I believe that the reason we get long lists of tubercular families, such as Osler presents, is due to the fact that a mother and daughters are necessarily in close contact, and hence the means of infection are increased, and

Digitized by Google

that the lack of proper care in disinfecting the sputa is the cause of these family histories, and not some weakness on the part of the cell. In these tubercular families the disease is just as apt to attack a husband or wife who has no previous tubercular family history. Often one son or daughter of a tubercular family away from home will escape, while all the rest of the family will die of consumption.

The British Medical Association reports 158 cases of tuberculosis through marriage. One man lost 4 wives by tuberculosis, another 3, and 5 lost 2.

H. Edward Sims has collected records from 176 cases of phthisis. He found only 71 parents or grandparents of 42 cases that were tubercular, while 134 were clear.

The following table of diseases occurred in the ancestry of the 176 cases:

Epilepsy	16
Apoplexy	46
Bright's disease	39
Cancer	60
Heart disease	148
Insanity	28
Alcoholism	84
Diabetes	14
Syphilis	11
Phthisis or tuberculosis	71
Miscellaneous chronic diseases	157
Negative history of chronic diseases	382
	1,056

In Minneapolis the returns from 84 cases of tuberculosis gave results as follows:

Tubercular history and no contact with tubercular members of family	8
Tubercular history and contact with tuberculous members of family	20
No tubercular history and no contact with tuberculous members of family	36
No tubercular history—contact with tuberculous members of family	7
Tubercular history and contact with tubercular associates	3
No tubercular history and contact with tubercular associates	7

Digitized by Google

It will be seen that of the 8 with tubercular history, but no immediate contact with family, 7 live in contact with other tubercular associates.

Predisposing causes were given under the following heads:

Occupation and contact	8
Occupation and no contact	15
Pregnancy and contact	5
Pregnancy and no contact	3
Syphilis and contact	2
Typhoid and contact	2
Pneumonia and no contact	6

Some rare and unusual methods of infection were discovered:

1. Infection from coat. A Scandinavian mail carrier in rural districts, previously healthy, developed tuberculosis soon after wearing a fur coat that had formerly been worn by a man who died from this disease.

2. Infection from husband, apparently cured, to wife and brother.

3. Infection from house. Case No. 1 developed consumption and died. The rooms with furnishings were rented to case No. 2, who also developed the disease and died. Case No. 3 rented the room, and after an attack of the disease went South and completely recovered. After the house had been thoroughly fumigated and cleaned no new cases developed.

4. Infection following close upon syphilis as general miliary tuberculosis. Developed in secondary stage, three cases.

5. Infection following typhoid. At a post-mortem examination, lesions of typhoid and tuberculosis were found. In a second case no post mortem was held.

6. Infection of a family—father, mother, son and daughter, who had been in intimate contact. No disinfectants were used.

7. Infection of nurse, orderly and scrub girl.

The prevention of tuberculosis should consist—

1. In the collection and the destruction of sputa. This

Digitized by Google

is best done by using a solution of 5 per cent carbolic acid, into which the patient expectorates. While on the street some form of portable spit-cup is recommended, which should be thoroughly cleaned and afterwards boiled. In disposing of sputa at least 24 hours immersion in 5 per cent carbolic acid is necessary. Burning is also suitable.

Expectoration into handkerchief is absolutely to be condemned. If pieces of cloth be used they should be burned at once, and not allowed to dry.

2. In a tubercular patient holding a handkerchief in front of the face while coughing, clean handkerchiefs should be frequently supplied and boiled after use.

3. Inspection of cattle and milk.

4. Suppressing all necessary dust by sprinkling, etc.

5. Enforcement of spitting ordinance. The importance of this is emphasized in the records of our public schools. No janitor in our public schools has ever developed tuberculosis in the last fifteen years. Tuberculosis is common among janitors of other buildings. The reason for this, I think, is due to the fact that the spitting ordinance is absolutely enforced in our public schools.

6. Care in disinfection of table utensils used by consumptives. This is illustrated by case reported by Flick. In this case infection was undoubtedly carried by the drinking-cup.

7. Avoidance of eating food which has been exposed to dust.

8. Proper sterilization of books used by consumptives.

9. Preventing consumptives from working in cigar factories.

10. Sterilizing all cloths sent to public laundries before being sorted.

11. Abolishing all tubercular animals as pets. Monkeys are especially prone to tuberculosis.

12. Fumigation and cleaning of premises after vacation by tubercular subjects.

Digitized by Google

DISCUSSION

DR. C. H. HUNTER (Minneapolis): I would not undertake the discussion of this paper because the subject has already passed from the hands of the general practitioner into those of the specialist. We are willing to turn it over to those who are particularly versed in this matter, and it probably will be made the part of a public functionary's business to attend to a great many details in these matters of prevention, so, of course, a minute knowledge of some of the matters of individual prevention should be of practical value to us all. There was one feature of the paper that struck me with particular interest, and that was as to the suggestion for sweeping and cleaning public buildings. Through the public prints we learn that Dr. Corbett has been conducting some studies in this matter that are or should be of the most lively interest, especially so in regard to the sweeping of hospitals, and next in importance the sweeping of school rooms. While the matter of sweeping is not really the subject-matter of the discussion tonight, I would be very glad if Dr. Corbett could outline the conclusions he has come to, if any, and give us an idea of what he bases those conclusions on. I have nothing further to add, but I would be extremely interested if, in closing the discussion, he would give us some information on that point, because it would be of general interest.

DR. J. FRANK CORBETT (Essayist): In regard to cleaning of school houses, we tried a series of experiments to determine the relative number of bacteria in the air of school rooms after various methods of cleaning, namely, dry sweeping, sawdust sweeping, and scrubbing; also after dry sweeping with fan ventilation, after dry sweeping with open-window ventilation. We found the ventilation to be a very important factor. Only one-half as many bacteria were found with fan ventilation as with open windows. Sawdust sweeping gave returns that were disappointing. This was probably due to the sawdust being retained in the cracks of the floor and about the legs of desks. The best results were obtained by scrubbing. I regret not having a chart here showing all details.

Digitized by Google

SUBPARIETAL INJURIES OF THE KIDNEYS, WITH REPORT OF FOUR CASES

WALTER COURTNEY, M. D.

Brainerd

In the limited time allowed for the reading of papers, it will not be possible to extensively consider the literature of the subject, and therefore the writer will not attempt to do so.

This subject has had attention among surgeons from comparatively early times. Gittler of Leipsic published a special work on kidney injuries as early as 1596. Rayer of Paris (1793-1867) gives an excellent résumé of the literature of the subject up to this time, with an account of ten cases of wounds and thirteen cases of contusion and rupture of the kidney. Herman Maas, of Wurzburg, (1842-1886), published in the Deutsche Zeitschrift für Chirurgie, Vol. 10, 1878, an account of an experimental inquiry into the effect of artificial rupture of the kidney in animals. He also published a collection of 72 cases of injury to the kidney in man, and stated that of that number, 34 patients died of their injuries. Keen of Philadelphia, in the Transactions of the American Surgical Association, 1896, reported a collection of 117 cases, covering the period from 1878 up to 1897. Davis of Chicago, in the Annals of Surgery, Vol. 36, for 1902, reports a collection of 35 cases of ruptured kidney, one of which he treated himself, covering a period of five years, 1897 to 1901, inclusive of both. This collection is sequential to Keen's, and I am not aware of any other since.

Notably among the names of other writers on this subject stands that of Henry Morris. The section on "Subparietal Injuries of the Kidney," in his book, "Diseases of

Digitized by Google

the Kidney," is one of the most valuable in medical literature.

These injuries of the kidney are comparatively uncommon. Few surgeons have seen many cases, and some who have been in active surgical practice for years, have not met with even a single case. In the sixteen years of my service as surgeon in charge of the Northern Pacific Railway Hospital at Brainerd, and as Chief Surgeon of the Eastern Medical Division, consisting of about one-half of the mileage of the system, I have encountered only two actual cases of subparietal rupture of the kidney. Doubtless there have been others among the early fatal crushing injuries, which did not come to operation or autopsy. We have, however, observed several cases of contusion unaccompanied by laceration or rupture, and where transient hematuria was the principal symptom. This experience, combined with a review of the literature at command, inclines me to the belief that railway employes are not more liable to subparietal injuries of the kidneys than men in other walks of life. My third case occurred in the person of a farmer.

Subcutaneous injuries of the kidneys may be divided, according to the degree of severity, into (a) contusions; (b) lacerations; and (c) complete rupture of the organ into two or more portions. In contusions, the injuring force may have been only sufficient to disturb the structure of the kidney to the extent of causing an extravasation of blood and consequent hematuria. Of these cases I believe I have seen several. In lacerations the injuring force, while greater, may have only resulted in more or less extensive tearing or lacerating of the parenchyma, with or without a similar and simultaneous effect on the capsule or pelvis. Primary laceration of the kidney substance only may be secondarily followed by a solution of continuity in the capsule with resulting urinary effusion. Case 1, in the writer's report, is a case in point. In ruptures the injuring force may have been so severe as to have partly or completely separated the organ into two or more fragments, torn the main vessels, and, in addition, lacerated or ruptured contiguous or remote or-

Digitized by Google

gans as well. Subcutaneous injuries of the ureter are exceedingly rare. Morris, in his Hunterian lectures, for 1898, states that he has only been able to collect 23 cases.

These injuries occur much more frequently in males than in females. This is no doubt due to the more active habits of the sterner sex, whether men or boys.

The cause of these injuries may be either direct or indirect violence. Direct violence may be due to a fall from a height, and striking some prominent object, like the edge of a manger; the kick of a horse, the passage of a cartwheel across the body, a blow from a wagon pole, etc. Prince A. Morrow says ("Genito-Urinary Diseases," etc., Vol. 1): "The common, direct cause is a fall from a height." Two of the writer's cases received their injuries in this manner. Indirect violence may come from extreme muscular action, as in forcible flexion of the trunk or other contortions of the body; from a fall, striking on the feet or buttocks, and causing severe jarring. Accompanying these injuries there may be also laceration or rupture of the liver, spleen, lungs, and intestines. If the force is applied over the abdomen, from the front, there is great danger of the peritoneum being torn. This is particularly likely to happen in children, because of the absence of perirenal fat.

SYMPTOMS

Where there has been no more serious injury of the kidney than a contusion, hematuria is the principal symptom. In the cases I have observed, the history of the injury led us to collect, measure, and examine the urinary secretion, and on detection of blood, and the absence of any other particular sign of trauma, a diagnosis of contusion was made. The hematuria is transient usually, and the patient but little indisposed. The principal diagnostic symptoms of ruptured or badly lacerated kidney are pain, hematuria, and tumefaction. Shock, more or less severe, is usually severe at first, and confined to the region of the injured kidney; later it radiates to the groin, testes, and bladder. The regional muscles are tense, and the patient inclines to a fixed posi-

Digitized by Google

tion. Hematuria is present in most of the cases, the exception being where the ureter is plugged by clot or ruptured, or the kidney divided transversely into two fragments. The presence of blood in the urine may be slight at first, and increase later on; or be intermittent, with an interval of even several days between. Diminished discharge of urine, for a time, is not infrequently observed. Sometimes blood coagulates in the bladder, and prevents micturition. Casts of the ureter are sometimes found in the urine. Complete suppression or anuria is probably due to rupture of both kidneys. Tumefaction and extended dullness in the loin, appearing soon after the injury, is indicative of rupture and hemorrhage. If the tumefaction comes on slowly and is distinct as to outline, the probability is that the hemorrhage is intracapsular. Late tumefaction is likely to be due to urinary effusion or abscess formation. Hemorrhage is seldom so extensive, soon after the injury, as to cause death, unless the renal vessels and peritoneum have been torn. Ecchymosis in the region of the loin has no special significance, but when present at the external inguinal ring, is pathognomonic. Anemia will be proportionate to the amount of hemorrhage. Peritonitis is not likely to occur early unless there has been an injury of that organ and the intestine as well. Writers seem to disagree as to the value and presence of shock. Some say it is usually present in quite a marked degree, and others say it is not a characteristic symptom. When present in a marked degree, it is doubtless indicative of extensive hemorrhage and severe injury to other internal organs, as the liver and spleen. Vomiting may or may not be present. The late symptoms of particular value are those indicating sepsis and are not necessary of description here.

DIAGNOSIS

In contusions of the kidney, the diagnosis may be made on the history of the injury and the presence of hematuria. It is well to remember, however, that hematuria may be the result of dislodgment of a renal calculus, disturbance of a

Digitized by Google

renal tubercular process, or from the presence of vesical papilloma.

Diagnosis of badly lacerated or ruptured kidney must be made on the history of the injury, the presence of shock, severe pain, hematuria, tumefaction, etc. It must be remembered that in certain cases, other organs besides the kidney have been subjected to a more or less widely distributed vulnerating force, and have suffered in consequence. When marked shock is evident, examination must be exceedingly careful and excursive. The symptoms already detailed are to be remembered and carefully looked for.

PROGNOSIS

The prognosis of a clearly diagnosticated case of uncomplicated renal contusion is very favorable indeed, and sequelæ are unlikely to appear. When the kidney is extensively lacerated or ruptured the prognosis must always be more or less grave. If immediate danger is not imminent, it must depend, to a large extent, on the capability of the other kidney for doing additional work. The adaptation of operative treatment will greatly influence the prognosis, and more particularly whether early or late. Statistics show that at least one-third of these cases die under any form of treatment.

The following on prognosis is quoted from the article of Dr. Davis above referred to:

"Keen reports 118 cases of rupture; 67 recoveries; 50 deaths; one under treatment at time of report. Mortality of 42.7 per cent. Of the fatal cases, 17 should be left out for the following reasons: 1 case had no kidney; 2 cases had injuries of both kidneys; 2 were found dead; 12 had other complications. Omitting these gives a general mortality of 33 per cent. Thirteen early deaths, no nephrectomy; 11 of these from shock and hemorrhage; 2 from hemorrhage, shock, and peritonitis; 10 late deaths; no nephrectomy; all but two from sepsis; 2 from hemorrhage. Had these 23 cases had early nephrectomy, it would probably have reduced the mortality to 23 per cent. Twenty-

Digitized by Google

two cases of nephrectomy; mortality 36.4 per cent. Ninety-five cases no nephrectomy; mortality 44.2 per cent; and it was only in the grave cases that nephrectomy was done. Five cases of primary nephrectomy, 1 death; mortality 20 per cent. Thirteen cases, secondary nephrectomy; mortality 38.5 per cent. Causes of death, primary hemorrhage and shock, 11; found dead, 2; peritonitis, 5; coma, 2; pneumonia, 1; sepsis and exhaustion, 10; anuria, 1; nephritis, 1; uncertain, 1. Two cases of partial nephrectomy with recovery." * * *

Davis says: "In my series of 34 cases, there were 7 deaths; mortality 25 per cent. Without operation, 8 cases, 3 deaths; mortality 37.5 per cent. Drainage, 9 cases, 2 deaths; mortality 22.22 per cent. Nephrectomy, 18 cases, 2 deaths; mortality 11.11 per cent, but these two deaths were on account of hemorrhage, and the operation having been done too late. Early operations, 18 cases, 1 death; mortality 5.5 per cent. Late operations, 8 cases, 3 deaths; mortality 37.5 per cent. Of the 7 fatal cases, cause of death was in the 3 unoperated cases: (1) internal hemorrhage; (2) internal hemorrhage and shock; (3) peritonitis on third day. Operated cases, internal hemorrhage and shock from lateness of operation in 2 cases; in 2 cases the cause was not given, 1 dying on the twenty-first day after drainage of large hematoma on tenth day; the other died on second day following immediate drainage."

COMPLICATIONS

Hydronephrosis may develop as the result of plugging of the ureter from blood clot. Pyonephrosis and perirenal abscess are liable to develop later from infection due, in many instances, to the passage of a catheter. Cystitis is a complication sometimes set up by instrumentation of the bladder for the purpose of removing clots. This, of course, is a grave condition because of the possibility of extension of infection to the kidney, and beyond, when the capsule is ruptured. Embolic obstruction of the circulation in some distant part may be a late complication in those cases of

Digitized by Google

perirenal effusion of blood, which is not early removed. This was evident in the writer's case, No. 2.

TREATMENT

In a case of ordinary contusion of the kidney, the treatment should be complete rest in bed; morphine, if there is much pain; ergot or ergotine, if it appears necessary from the amount of blood in the urine; and an ice-bag to the loin, on the injured side. Little, or nothing more, will be required for this class of cases. In lacerations, which are sometimes difficult of accurate differentiation from the less severe forms of rupture, the question of prompt operative treatment may not be easy to settle. In the absence of signs of severe hemorrhage, tentative treatment, to meet the early indications, would seem proper. My own cases were of that character. However, an exploratory operation, properly conducted, might be the safest plan to follow, inasmuch as no great harm would be likely to come from it, and the opportunity of arresting hemorrhage and establishing drainage, prove an adequate gain. In ruptured kidney, where such a diagnosis has been made, the treatment should be early operation, and the incision made in the iliocostal space, unless there is reason to believe the peritoneum ruptured, or similar damage to other internal organs, in which case it would be better to make the incision in the linea semilunaris. The results obtained from early operative treatment, as shown by the reports in recent years, would seem to clearly demonstrate its superiority over the expectant plan. The question as to whether nephrectomy should be performed or not will largely depend on (a) the patient's ability to undergo an operation, (b) whether the renal vessels are intact, (c) how much disorganization of the kidney there may be, and (d) whether hemorrhage cannot be otherwise controlled. If the renal vessels have not been torn, the kidney structure apparently not injured beyond repair, and hemorrhage can be controlled by suture and gauze packing, it would seem far better to adopt a conservative course, and attempt to save the organ, or as much of it as possible. The

Digitized by Google

well known reparative power of the kidney makes resection of a portion, for disorganization or gangrene, a rational and conservative procedure, and results in reported cases have justified it. Any justifiable attempt at such conservatism is all the more important in view of probable lack of information as to the sufficiency and capability of the other organ for double duty.

A word more on treatment: The presence of a large firm clot in the bladder may be a source of considerable trouble, by interfering with micturition, and offering difficulty in its removal. Over-zealous efforts by the urethral route should be avoided, and a suprapubic opening made instead, and probably with less risk.

CASE I.—G. W. P——, aged 29 years, locomotive fireman, was admitted to the Northern Pacific Railway Hospital at Brainerd, Minn., January 6, 1892, with the following history: "Was firing on a freight engine out on the road when we ran on to a wooden bridge (near Sentinel Butte, N. Dak.), which was on fire. I jumped from engine and struck on my left side on some ties or bridge timber."

The patient was taken to Glendive, Mont., and placed under the temporary care of Dr. A. R. Duncan, who transferred him to our hospital at Brainerd. Examination 40 hours after the accident, showed patient to have received lacerated wounds over the left eye, on the chin, and a severe contusion over the left loin. There was found to be limited dullness in the region of the left kidney, and considerable distension of the abdomen. Blood was present in the first urine passed. His general condition was very bad, temperature 100°, pulse 110. Apparently he was not in condition to undergo a more or less prolonged operation, and inasmuch as nightfall was at hand, and we had no electric lights, it was decided to put him to bed, and use such medical treatment as the indications called for.

January 7th, a. m. temperature, 99°; pulse 88; bowels moved by enema; the patient feeling himself somewhat improved, refused operation; p. m. temperature 101°; pulse

Digitized by Google

100; urine for 24 hours, 32 oz., and contained blood; general condition slightly improved.

January 8th, a. m. temperature 101°; pulse 100; bowels moved; patient still refused operation; p. m. temperature 101.8°; pulse 116; urine for 24 hours, 31 oz.; general condition much the same as yesterday.

January 9th, conditions in every way practically unchanged.

January 10th, a. m. temperature 101.6°; pulse 100; bowels moved during the night; chill during the forenoon; patient still refuses operation; p. m. temperature 101°; pulse 104; urine for 24 hours, 33 oz., and still contains blood, but somewhat less in amount; dullness in left loin somewhat greater than at time of admission.

January 11th, temperature, pulse, and general condition about the same as yesterday; vomited once during the day, and when the bowels moved a small amount of blood was present in the stool.

January 12th to January 17th, no changes of particular note; light food, mostly liquid, together with such medicines as strychnine, digitalis, laxatives, and some whiskey have been given as seemed needful. On this date, the 17th, a considerable hemorrhage occurred from the bowels.

January 18th, a. m. temperature 101.2°; pulse 98; free perspiration; slight bowel movement, no hemorrhage; p. m. temperature 102°; pulse 80; urine for 24 hours, 30 oz.

January 19th, a. m. temperature 101.5°; pulse 100; very considerable increase in loin dullness; 24 hours urine, 24 oz.; p. m. temperature 102°; pulse 89.

January 20th, there is marked bulging in the left loin; temperature 101°; pulse 99; loin aspirated at 11 a. m., and 14 oz. of fluid withdrawn. This fluid was found to be made up of blood, some pus, and a large percentage of urine; p. m. temperature 101.8°; pulse 99; urine for 24 hours, 30 oz. ozs.

January 21st, extensive dullness and bulging in loin; patient consents to an operation. Under chloroform anesthesia an incision was made in the iliocostal space, about two quarts of fluid, composed of blood, urine, and pus, was

Digitized by Google

evacuated from the post-peritoneal space, extending from the pelvis to the diaphragm, and drainage tube inserted. The actual condition of the kidney was not ascertained; p. m. temperature 101°; pulse 90.

From January 21st to February 1st temperature has ranged from normal to 101°, and pulse between 70 and 100. Daily urine has ranged between 30 and 36 oz. The dressings have been saturated, largely with urine. General condition considerably improved.

March 1st, the patient's general condition has steadily improved during the last four weeks; temperature has been normal, or nearly so; pulse has ranged between 70 and 88; daily urine has ranged between 34 and 38 oz. The perirenal cavity has diminished somewhat in size but the dressings continue to be saturated with wound discharge, largely urine. The patient is now able to sit up, and has a good appetite.

April 1st, improvement has gone on steadily during the past month. Temperature and pulse have been practically normal. Nothing is left of the wound except a sinus, which extends downward into the pelvis, a distance of seven or eight inches. Urine continues to escape through the sinus, and daily dressings have to be made on that account. The patient is able to be about and is gaining in weight and strength. Daily urine has increased and sometimes reaches 45 oz. for the 24 hours. Examination shows it to contain albumen, about one-tenth by volume, otherwise normal.

May 1st, patient has continued to slowly improve; urinary fistula still exists, but has been reduced in depth to about four inches; urine continues to wet the dressings. Daily urine from 36 to 53 oz.

June 1st, nothing of note except that urinary fistula still remains.

July 1st, patient now in very good general health; sinus still exists and of about the same depth, three to four inches. It now looks as though the patient would have permanent urinary fistula, as all efforts have failed to close it.

August 1st, great improvement has taken place; the fis-

Digitized by Google

tula is practically closed and has been, most of the time, during the past ten days.

August 6th, patient discharged from the hospital to-day, with fistula permanently closed. His general health is good, and the urine practically normal in quality and quantity.

After a few months this man resumed employment with the railway company, but subsequently he removed to Ohio. A recent effort to learn his present condition secured the information that he was in business in an Ohio city in 1899, and in fair health. My informant could not give me definite later facts, but believed he was still living and in the same city.

CASE 2.—J. McP——, aged 36 years, American, section laborer, was admitted to the Northern Pacific Railway Hospital, Brainerd, Minn., December 11th, 1900, family history, negative.

Personal history, general health good up to present time.

Case history: On December 7th, while at work at Red Lake Falls, Minn., he was thrown from a hand-car in motion, and the front wheel ran over his body. He was taken to his home, and placed under the care of our local surgeon, Dr. N. M. Watson, Red Lake Falls, who wired me that the man had received severe internal injuries and could not immediately bear transportation to the hospital. Four days later he was sent to the hospital and admitted, at which time he complained of pain in the right loin and back, nausea, abdominal distension, and belching of gas, and there was a history of bloody urine since the injury. On examination we found a man of medium height, slight build, and sallow, anemic complexion; chest and abdominal cavities negative, except for dullness between crest of ilium and lower border of liver, extending in front well towards the median line, right side; no external signs of injury. The urine contained considerable blood; temperature 99°; pulse 96. Diagnosis: Severe laceration, or possibly rupture, of right kidney with perirenal effusion of blood. As immediate operation did not seem to be indicated, the patient was put to bed for observation, and such treatment as the symptoms called for.

December 17th, nothing particularly noteworthy in the

Digitized by Google

case since admission, December 11th; a. m. temperature normal; pulse about 80; p. m. temperature, highest, 101.6°; pulse highest, 92. Aspiration on the 12th with failure to withdraw any fluid. Examination of urine on the 14th showed 48 oz. for 24 hours; color dark; sp. gr. 1020; reaction alkaline; albumen present; sugar negative; sediment (microscopically) red and white blood cells; no casts. On one occasion, soon after admission, there was a very considerable quantity of blood present in the urine; no change in area of dullness.

December 24th, not much change in temperature or pulse-rate since last report. Daily urine ranges from 30 to 56 oz., with considerable blood present on two different occasions. Chemical and microscopical examinations not greatly different from report on the 14th; albumen varies somewhat, depending upon the amount of blood present. No pus in urine; hemoglobin about 60 per cent, in blood drawn from the finger.

January 1st, 1901, the patient has been gradually growing weaker; for several days past has had considerable increase in temperature, as high as 103.4° in the evening, and pulse has been up to 120. To-day, under cocaine anesthesia, an incision was made in the iliocostal space, and a large amount of clotted blood, equal to about 20 oz., was removed from around the kidney, the greater portion being just below the liver. It was all post-peritoneal. Double drainage tube was inserted through the wound into the cavity. Exploration did not include the condition of the kidney; that was not ascertained.

January 7th, the patient's condition not much improved; temperature and pulse still ranging high; free drainage of broken-down blood. He has had severe paroxysms of pain in the region of the bladder, and has passed blood clots per urethram. The amount of urine has varied from 24 to 50 oz.

January 18th, the patient has gradually improved since last report; the temperature has slowly approached and reached the normal; appetite is increasing. The amount of urine passed is increasing, having reached as high as 70 oz.

Digitized by Google

for 24 hours. Macroscopically, it is free from blood. Some red-blood cells can be detected under the microscope. The wound continues to discharge some broken-down blood. There has been no evidence of urine in the wound discharge at any time. A few days ago the right foot showed anesthesia, and a little later became swollen, followed by a reddish and then brownish discoloration, involving the first, second, and third toes.

March 24th, since last report the patient has slowly but steadily improved; the wound slowly healed and closed about ten days ago. There were several spots of skin necrosis on the right foot, most extensive on the great toe and plantar surface of the foot. These have left indolent ulcers which are now almost healed. The daily urine has ranged from 50 to 60 oz. It contains about one-sixteenth albumen, by volume. Microscopic examination fails to show blood cells, pus, or casts. Patient was discharged from the hospital to-day.

On April 26th last I had a letter from Dr. Watson, in regard to the present condition of this case, and he said: "As far as the kidney condition goes, I believe he has made a perfect recovery. For a long time after he returned from the hospital, he complained considerably about his foot. I have not seen him for some time, but believe he is now in good health."

CASE 3.—While on a hunting trip in North Dakota, in September, 1903, I saw this case in connection with Dr. Jas. P. Aylen, of Sheldon (N. Dak.). Dr. Aylen has kindly furnished the history of the case up to the time of the operation, and subsequently. The notes on consultation and operation are my own.

"H. K——, German, farmer, aged 25 years, residence, Anselm, N. Dak. Family history, negative; personal history, negative, up to the present time. Case history: On July 21, 1893, patient came to office, complaining of having fallen from a hay-loft in his barn, striking on the manger edge, some eight feet below, injuring his right side and back. Physical signs of injury: None present excepting pain on

Digitized by Google

motion and on pressure over the lumbar muscles. Urine, normal. Prescribed, rest in bed, liquid diet, a laxative, and an anodyne liniment.

July 30th, condition about the same, but the right kidney was enlarged and tender.

August 4th, blood clots appear in the urine. Unable to urinate while in the erect position owing to the clot obstructing the exit from the bladder. Treatment: ergot, urotropin, and ice-bag to loin. Blood continuously present in the urine in large quantities until August 17th, when the urine cleared up for twelve days.

Patient was brought to the hospital September 3d, as he was again passing blood from the bladder, and was becoming quite anemic; hemoglobin 40 per cent; no temperature at any time previous to operation; and pulse never indicated active hemorrhage."

It was at this juncture that I saw the case with Dr. Aylen. We visited him at his home on August 31st. Examination showed considerable dullness in the right loin. The patient stated that he was passing blood in his urine at that time. Diagnosis: Perirenal effusion of blood from laceration of the right kidney due to injury on July 21, 1903, as above described.

Operation September 3, 1903. Under chloroform anesthesia an incision was made in the right iliocostal space over area of dullness. No blood was found in the perirenal tissues. Instead, there was present in the wound an enormously enlarged kidney, very dark in color, with downward displacement. As nearly as could be estimated the kidney was from three to four times the normal size. An incision was made through the capsule, which was greatly thickened, estimated at one-eighth inch. The capsule was separated from the convex border, and a small portion cut away. Gauze was packed over the decapsulated surface, and brought out through the wound, which was closed by sutures from either end up to the drain.

Dr. Aylen reports: "Patient was discharged September 17, 1903; wound healed; urine normal; hemoglobin 60 per

Digitized by Google

cent; kidney about one-half the size it was at the time of operation. He says he feels 'all right.' April 3, 1904: The patient has performed farm labor of all kinds for several months, and says he feels as well as ever. Urine normal; kidney cannot now be palpated."

CASE 4.—In conversation with Dr. W. H. Bodenstab, of New Salem, N. Dak., the other day, he told me of a case of subparietal injury of the kidney that he had been called upon to treat, and kindly furnished the following history and account of the case:

"Harry L——, aged 14 years, was kicked in the abdomen by a horse, on the 25th day of July, 1903, about 9 o'clock in the morning. I saw the patient about 12 o'clock; he was very anemic; pulse 120, very small in volume, and easily compressible. He had vomited several times before I saw him. Upon examination of the abdomen, there were found several small ecchymotic spots a little below and to the left of the umbilicus. The boy could not tell on which side he was struck, so he must have been unconscious for some time. The abdomen was distended and tender, especially on the right side, and the bladder could be felt above the pubic bone. He had not passed urine, so I catheterized him, and drew off about 20 oz. of apparently clear blood. Patient was taken to the hospital, and fearing an internal hemorrhage, an operation was decided upon. This was about 8 o'clock in the evening. An incision was made in the linea alba, and the peritoneum opened. There was no blood in the peritoneal cavity, but the small intestines presented a number of hemorrhagic areas. The bladder was apparently uninjured. Behind the peritoneum, on the right side, was found a dark, bulging, fluctuating mass. The median incision was at once closed, and another made in the right lumbar region. About a pint of blood, mostly clots, mixed with urine, was removed. The wound was not in a condition for examination of the kidney, and since the hemorrhage, apparently, had stopped, no further exploration was made. The wound was packed and drained. The discharge for a long time had the odor of urine, but that finally

Digitized by Google

ceased. The abdominal wound healed without complications, and the intestines regained their vitality. On Sept. 15th the patient had regained his strength, was eating well, and felt perfectly well. There was left at that time a small sinus, which was discharging slightly. The last I heard of him he was getting along well. The boy left for the state of Washington on Sept 15th, and that was the last I saw of him. Upon inquiry, I was informed that he was doing well. Of particular interest is the fact that the external signs of injury were on the left side while the right kidney was the one injured."

In case 1 particular interest centers in the late perirenal extravasation of urine, no doubt due to solution of continuity in the fibrous capsule, about the eleventh or twelfth day after injury, and to the lengthy persistence of the urinary fistula, with its final and permanent closure.

In case 2 the great amount of hemorrhagic effusion indicated a serious laceration or rupture, and it is quite remarkable that there was no urinary extravasation. Especially noteworthy in this case, however, were the anesthesia, edema, gangrenous skin areas, and indolent ulcers of the right foot, coming on over a month after the injury to the kidney.

Case 3 is interesting because of the intracapsular hemorrhage, great enlargement of the kidney, and the serious and prolonged hematuria.

In case 4 (Dr. Bodenstab's) the noteworthy fact was the external signs of the application of the injuring force to the left side, while the right kidney was the one actually injured.

From this series of four severe cases, all recovering without nephrectomy, it would seem that the inference to be drawn is that nephrectomy should only be performed early, when the renal vessels are known to be torn, or when there is such unmistakable disorganization of the kidney structure as to make it reasonably certain that resumption of function cannot be expected.

Digitized by Google

NASAL SUPPURATION FROM A PRACTICAL STANDPOINT

E. H. PARKER, M. D.

Minneapolis

According to the period in life, a purulent nasal discharge in the new-born infant usually means a syphilitic or blennorrhagic rhinitis. In childhood before the age of fifteen a chronic bilateral purulent discharge usually means adenoid vegetations, while a unilateral discharge most commonly means a foreign body, especially from the age of two to five, when children are most inclined to push small objects into the nose. A child of five years of age was referred to me for an odorous, one-sided, purulent discharge of seven months' duration, the cause of which was found to be a shoe-button deeply imbedded between the inferior turbinate and the septum. The parents had no knowledge of the entrance of the foreign body, and supposed the child to be suffering from catarrh. Less frequently in childhood we may have an acute diffuse nasal suppuration from such infections as diphtheria, gonorrhea, etc.

In adult life nasal suppuration is practically always due to localized disease, not to diffuse suppuration of the nasal mucous membrane. Many causes of nasal suppuration might be enumerated, such as syphilitic ulceration with necrosis of bone, degenerating malignant growths, and non-malignant growths or enlargements causing nasal obstruction may give rise to purulence by stagnation of normal secretions. Tubercular ulceration is rarely seen in the nose except in the last stages of pulmonary or general tuberculosis.

By far the most common cause of nasal suppuration

Digitized by Google

is disease of the accessory sinuses, and they constitute a large proportion of the nasal affections which come under the notice of the general practitioner. I think it is safe to say that most of these cases pass through the physician's hands with a diagnosis of catarrh, and the patient goes through life, perhaps, with pus and its attendant complications acting as a continual menace to health.

Without going into details of anatomy, the accessory sinuses may be considered as a series of bony cavities surrounding the nasal passages into which they open, therefore liable to inflammation by extension from the nasal cavity. The sinuses are usually not present at birth, but are formed by absorption of cancellous tissue, reaching maturity at about the time of the eruption of the wisdom teeth. The antrum begins to develop soon after birth, the frontal sinus from one to two years, and the sphenoidal sinus from three to six years of age. On account of their small size it is not common to find disease of the accessory sinuses before the age of fifteen. Ball found, in twenty-nine consecutive cases of purulent rhinitis in children under fifteen years of age, twenty-three affected with adenoids, four with foreign bodies, and two with empyema of the antrum. The average size of the mature sinuses is about as follows:

Antrum, 1½ by 1 by 1¼ inches.
Frontal, 1¼ by 1 by ¾ inches.
Sphenoidal, ⅞ by ⅞ by ¾ inches.
Ethmoidal—variable in size and number.

All are large enough to harbor a dangerous amount of pus.

The sinuses are best considered in two groups, according to the position of their natural openings of exit. The anterior group, consisting of the antrum, anterior ethmoidal cells, and frontal sinus, has its exits close together beneath the anterior end of the middle turbinate in the middle meatus. The posterior group, consisting of the posterior ethmoidal cells and the sphenoidal sinus, opens into the nose above the middle turbinate. The

Digitized by Google

frontal sinus has its exit at its lowest level, thus favoring drainage and spontaneous cure. The antrum and the sphenoidal sinuses have their exits unfavorably located high up, rendering drainage very poor in case of suppuration.

ETIOLOGY.

The etiology of sinus empyema is no longer obscure. Through bacteriology we find most constant: influenza bacillus, diplococcus pneumoniæ, staphylococcus pyogenes albus and aureus, streptococcus, and even Klebs-Loeffler bacillus has occasionally been found. We therefore find acute infectious diseases responsible for most cases, of which influenza is most often accompanied by suppuration of the accessory sinuses. Next in frequency we find measles, scarlet fever, typhoid fever, croupous pneumonia, variola, diphtheria, and erysipelas. By transmission from disease of neighboring organs, dental caries is responsible for many cases of antrum disease. Suppurating adenoids constantly provide a ready supply of infective material, and are responsible for more sinus disease than is generally supposed. The sinuses may become infected through traumatic causes, especially the frontal and antrum. Suppuration may be transmitted from one sinus to another. Chronic diseases more rarely produce sinus disease, such as tuberculosis, syphilis, malignant growths, etc.

The pathology of acute sinus empyema is that usual to mucous membrane, namely, congestion, swelling, and infiltration with round cells. In the chronic form the mucous membrane is converted into a pyogenic membrane, thickened by connective tissue, destruction of glands, and much of the epithelium; often granulation tissue, polypi, polypoid degeneration, cysts, and necrosed bone. A closed empyema is formed when obstructive swelling closes the natural exit, when we get rapid distension, perforation, secondary abscess, fistula, etc.

Digitized by Google

SYMPTOMS.

The symptoms most common to sinus disease are:

1. Discharge is commonly unilateral, varying from a seropurulent to mucopurulent or even pure pus. Sense of smell is disturbed or lost. Subjective odor is sometimes the only complaint leading to the detection of sinus disease. Patient sometimes complains of tasting pus.

2. Pain is often one-sided and intermittent, coinciding with the filling up of the cavity to the point of distension, when there is a sudden copious purulent discharge and the pain is temporarily relieved. In acute sinus empyema there is usually a feeling of great distension, which is much aggravated by coughing or sneezing. In these cases the location of pain, if accompanied by local tenderness, swelling, or edema, may determine at once the particular sinus diseased. On the other hand, in chronic cases the headaches are so variable that the localization of pain by the patient is of little value in determining the location of the disease.

3. Nasal obstruction nearly always accompanies sinus empyema. If acute, there is localized turgescence of the turbinates, which results later in hypertrophy from longer irritation from pus. Bulging of the sinus wall into the nose increases obstruction. Crusting is sometimes so great in cases of long standing that nasal respiration is materially lessened. Nasal polypi are so constant that their presence is considered by some of the best authorities as almost pathognomonic of sinus empyema.

4. Secondary symptoms and diseases. The effect of continuous pus in the nose is practically always atrophic rhinitis; likewise if the pus flows backward into the pharynx there is dryness of the throat and huskiness of voice from atrophic pharyngitis and atrophic laryngitis, in many cases leading to a chronic bronchitis which proves very obstinate so long as the backward flow of pus keeps up a continual irritation. Grünwald asserts that

Digitized by Google

ozena is always caused by focal suppuration, chiefly sinus disease. Whether true or not, the idea stimulates one always to look for suppuration in connection with any atrophic process. I have frequently seen mild atrophic rhinitis and pharyngitis practically cured by removal of suppurating adenoids.

In reference to atrophic rhinitis and sinus disease I have selected this case from my records: April 3, 1902, Mr. H—, aged 21, complains of loss of smell, bad breath; constant but mild frontal headache, worse in morning; crusting in nose and throat sufficient to cause nasal obstruction; some cough; duration of disease ten years.

Nasal examination revealed the usual picture of atrophic rhinitis, some atrophic pharyngitis, and a slight atrophic laryngitis. After the crusts were removed from the nose, pus was seen coming from the right middle meatus. Trans-illumination, negative result. Diagnostic puncture of the right antrum revealed a large amount of foul smelling pus. The sinus disease was cured by a radical operation after several months' treatment, with return of sense of smell and relief from headache, bad breath, and cough. The secondary atrophic changes in the nose, although improved, will of course remain permanently.

Digestive disturbances are quite constantly associated with sinus empyema, obviously for the reason that pus constantly finds its way into the stomach.

Septic absorption in chronic sinus suppuration lasting, as it often does, for years, must produce a marked impression even on the strongest constitution. Inspiration pneumonia has been reported. Kunt believes the absorption of pus plays an important part in the etiology of functional disturbances of the eye. It is also probable that many obscure pyemic affections find their origin in unrecognized sinus suppuration. Facial erysipelas has been observed several times, clearly secondary to sinus disease. Hajek reported a severe case of left antrum empyema with great pain, high fever, and bloody,

Digitized by Google

purulent discharge of streptococcus origin. On the fourteenth day facial erysipelas started on the left side of the nose. Middle ear infection is often caused by direct infection through the Eustachian tube, mostly however, in connection with acute sinus disease. Orbital abscess is most frequent from suppuration of the frontal sinus; its thin inferior wall is most easily ruptured. Orbital abscess in this region displaces the eye downward and outward. Less frequently the anterior ethmoidal cells, and rarely the antrum, may rupture into the orbit, displacing the eye outward or upward. Primary orbital abscess is not common, and with it one should always suspect sinus trouble. The optic nerve and vessels are in close proximity to the sphenoidal sinus, and suppuration of this cavity often leads to severe optic disturbances. Grünwald has collected a number of interesting cases of spontaneous rupture of sinus empyema into the brain cavity. Though these cases are comparatively rare, it is well to bear in mind that the frontal, ethmoidal, and sphenoidal sinuses are in direct relation to the base of the skull and therefore by necrosis or lymphatic absorption may produce subdural abscess, meningitis, etc.

DIAGNOSIS.

Most cases of acute sinus disease pass undetected, and reasonably so, for if associated with an acute infectious disease the symptoms are often so masked, and the difficulties of a bedside examination are so great, that a positive diagnosis is often impossible. Even an acute suppuration of the antrum from dental caries is often so masked by the accompanying toothache that the antrum disease is for a time undetected. The frequency of sinus disease is well illustrated by Harke's thirty-seven autopsies of adults in cases of typhoid, influenza, pneumonia, etc., where suppuration of some of the accessory sinuses was found thirty-one times. No doubt many cases of acute sinus empyema undergo spontaneous cure, while many other cases require only slight assistance to

Digitized by Google

bring about a cure. In acute empyema of the frontal sinus, all that is usually necessary is the removal of the anterior end of the middle turbinate. This slight operation uncovers the natural opening, and with the immediate flow of pus there is relief from pain, and a tendency to cure in a few days without further treatment. It may be necessary in after treatment to keep the exit open by reducing swelling and congestion. Adrenalin in vaseline, 1 to 5,000, I find most effective in all congestive conditions of the nasal mucous membrane.

In chronic empyema there are few diagnostic symptoms that can be relied upon for a differential diagnosis. Palpation tenderness over the roof of the orbit points to frontal sinus disease; over the canine fossa to the antrum; and over the lachrymal bone at the inner angle of the eye to the anterior ethmoidal cells. Caries of the upper teeth is suggestive of antrum disease. Frontal headache in the morning, disappearing after a few hours, points to the frontal sinus. Fetor is most common to antrum disease. Transillumination often shows a relative opacity over the sinus diseased.. There are many cases of chronic empyema, however, with discharge of pus for years with almost no pain, swelling, or tenderness to suggest it. The location of pain, if present, is often unreliable; a frontal headache may be found with disease of any sinus. Palpation tenderness is not always present. Transillumination is very uncertain owing to variations in thickness and density of the bony wall. A pus cavity often illuminates well if the mucous membrane is not much thickened. The symptoms and secondary changes go far toward determining the fact of an empyema, but the differential diagnosis is often arrived at only by methodical intranasal examination of each individual cavity. When pus is found flowing into the middle meatus anteriorly, we know it must come from one of three sources, namely: the antrum, or the frontal or anterior ethmoidal cells. The antrum is tested first, because most frequently diseased, for the reason that the antrum is not only liable to infection through

Digitized by Google

the nose, but has the added infections through dental caries. The antrum is examined as follows: With a large hollow needle or trocar a diagnostic puncture is made through the thin layer of bone beneath the inferior turbinate, when with a hard rubber syringe attached the cavity can be inflated or washed out. With the use of cocaine the diagnostic puncture is a simple and painless operation, and decides the question at once whether or not pus is present. The frontal sinus is examined after removal of the anterior end of the middle turbinate, when in favorable cases a probe or canula can be passed into the sinus, and the presence of pus determined. If pus is not found in the antrum or frontal sinus, only the anterior ethmoidal cells remain in the anterior group, and they must be responsible. These cells can be entered in some cases with a probe or canula. Necrosed bone and granulations may be located, or a bulging of the cell walls often guides one to the particular cells diseased. The probe is the instrument of diagnosis for the ethmoidal cells. Pus flowing into the superior meatus posteriorly means either the posterior ethmoidal cells or the sphenoidal sinus. It is usually necessary to remove the middle turbinate entire, when the anterior wall of the sphenoidal sinus is brought into view, the natural opening probed, or a canula passed and contents evacuated. The sphenoidal sinus is probably more frequently diseased than the frontal, but is very often overlooked on account of its location far back in the nose. It is not uncommon to find simultaneous suppuration in several sinuses, when the difficulties of diagnosis and treatment are multiplied. Surgical treatment involves the removal of all diseased tissue from the cavity, and the establishment of free drainage. Tedious as such cases are sure to be, our patience is often rewarded by the resultant relief to the patient.

DISCUSSION

DR. R. C. DUGAN (Eyota): I am very glad that I heard this paper, because it opens up a subject upon which there is very little literature extant, at least I have been able to find but very little.

Digitized by Google

The recent epidemic of influenza seems to have increased the condition mentioned in the paper. I wish to call attention to that part of the paper in which he mentions suppuration of the orbit in connection with suppuration of the sinuses. It has been my misfortune in the last three years to have three bad cases of suppuration of the orbit in connection with the ethmoid and sphenoid sinuses. The first case was a case of suppuration in both the ethmoid and sphenoid sinuses, and illustrates what the essayist speaks of in a case of facial erysipelas. In a couple of days the eyeball on one side began to bulge, and I began to mistrust that there was suppuration of the orbit, and at the same time pus began to discharge from the nose. The other two cases were apparently suppuration in the ethmoid cells. There are a couple of little sinuses between the ethmoid cells and orbit. I do not know whether there is any name for them or not, but there is a channel from the ethmoid cells to the eye. The question of drainage comes up in these cases. Of course, an incision above the eye, in the hair, gives a smaller scar, and affords better drainage, than an incision below the eye, but, on the other hand, the pus running down over the eye causes irritation. In my first case I made an incision over the eye for cosmetic reasons. It was a little girl, and in order to hide the scar I made the incision in the eyebrow above, and then worked through over behind the eyeball with a blunt dissection to the pus. I got good drainage. Had a dacryocystitis. The next time I made an incision below the eyeball, but did not get a good result. I had to make an incision above the eye, and had to put in through-and-through drainage. In the third case an incision below the eyeball was all that was necessary. I got good drainage, and the case was entirely cured. Our recent epidemics of influenza and acute choryza in connection therewith have increased these nasal suppurations, but the literature on the subject is scant. I am therefore glad to have heard this paper on the subject.

Dr. J. A. Watson (Minneapolis): The subject of the doctor's paper is very timely. I remember that when in general practice I was worried, more than once or twice, by my inability to confirm a suspicion of suppuration in the nasal sinuses, and puzzled, in the few cases where I was able to make a positive diagnosis, as to the proper treatment to adopt. Dr. Parker has drawn a very close distinction between the pathological changes found in the acute and chronic forms, respectively, and I am sorry that time did not allow him to discuss more fully the varying treatment to be adopted under these varying conditions. In acute cases, where there is little or no thickening of the mucous membrane or production of new tissue, it is usually possible to cure aural suppuration quickly and easily by the extraction of an offending tooth with drainage through its socket or through the canine fossa. The good results claimed by

Digitized by Google

dentists are due to the fact that the cases they treat are nearly always caused by diseased teeth, and are almost invariably acute in their clinical history. It is very necessary, before adopting any procedure having as its object the cure of the disease, to determine the chronicity of the disease, and the exact pathological condition present. In all old chronic cases, particularly where the mucous membrane is much thickened, nothing short of a very radical operation should be considered. The Luc-Caldwell operation is undoubtedly the most satisfactory in the great majority of cases. Dr. Parker assisted me in a case upon which I operated about Christmas of last year. The young man had suffered from pain and profuse foul discharge from the antrum for seven or eight years. I removed almost the whole anterior wall, and through the opening thus made cut away a large part of the partition between the antrum and nasal cavity, including the anterior portion of the inferior turbinate. Recovery was rapid and complete. In less than three months the man was absolutely well, there being no sign of either pain or discharge.

Digitized by Google

THE MODERN TEACHING OF MATERIA MEDICA AND THERAPEUTICS

R. O. BEARD, M. D.

Minneapolis

In the practice of medicine, as in human life at large, the currents of action or re-action are usually traceable to an educational source. When the stream sets forward it is evidence of a power behind, as of an open way ahead. When the tide sets back it is evidence that it has been driven into a blind pocket from which there is no exit but in retreat. At the end of the pocket there is always an apparent stasis. Into such a cul-de-sac modern medicine has drifted under the influence of the therapeutic teaching of the past. Progressive as it is in its main movement, scientific as it is in its method of advance, it has been compelled to halt at the head of this cul-de-sac, and to turn back in search of other outlets of progress. Its stasis is observed in the dominant therapeutic nihilism of the present day, in a prevailing and gathering scepticism of the drug treatment of disease. Its search for other avenues of exit is to be noted in the opening up of new and varied methods of healing. In the end, as in the whole process of evolution, there is advance. If the empiric teaching of the past has led the physician of to-day into paths which his scientific faith and practice cannot follow; if, in actual use, his pharmacopeia has been narrowed to the recognition of but a few remedies; if, in his modern warfare with disease, he has been compelled to abandon many of the crude weapons with which his professional forefathers ineffectively fought, his capacity for harm has been materially diminished, and his range of usefulness has widened itself out into the pursuit of other agencies of cure. Modern medicine, through these new

Digitized by Google

side channels, is working back into the main current of scientific progress.

Nevertheless, there is danger in stasis too complete or too prolonged in any one direction. Therapeutic nihilism has become a menace to the immediate movement of medicine in a direction in which its course should be no longer impeded, and this stasis continues because the channel of this therapeutic cul-de-sac continues to be choked by the worthless mass of materia medica which medical educators of the text-books and the colleges alike persist in pouring into it. It is time that the medical profession called a halt upon its teachers. There is need for relief, in which the whole body of the profession may engage.

It is the purpose of this paper to point out briefly the measures by which this relief may be attained.

1. It is time for the medical profession, through its national body, to authorize and edit, by a commission of therapeutic experts, an index expurgatorius of the useless and discarded drugs with which the pharmacopeia is still burdened. It is to be regretted that the last commission appointed to revise the national standard failed to use the opportunity which lay in its hand.

2. Scientific teachers of materia medica and therapeutics should exercise the courage of their convictions, and repudiate the teaching of much which remains, unfortunately, in the text-books as the mere debris of the materia medica of an earlier day.

3. The medical colleges must speedily follow the lead of three or four representative schools in America in placing the subject of materia medica among the essentially laboratory branches; in providing for the adequate equipment of laboratories, and for the employment of instructors who are fitted to conduct laboratory methods of instruction. Students should individually study the raw materials, the preparations and the physiologic effects of remedies which, later, they are to learn to prescribe.

4. The profession should abandon and teach the abandonment of the use of every drug, the employment of which

Digitized by Google

does not rest upon an intelligent understanding of its physiologic action, clearly demonstrated and accepted. Empiricism has no longer a place in the practice of medicine. Its effect on functional activity, and possibly through that functional influence, upon structural change, is the only rational basis for the application of any therapeutic measure.

5. In order to the determination of the classical physiologic effects, the profession should demand the standardization of all drugs. It should secure the enactment of laws which make a working distinction between proprietary preparations and patent medicines. These laws should forbid the sale of any remedy for human disease without the publication of its actual formula. They should require that its ingredients be of standard strength and purity, and of substantial uniformity.

As a step in this direction, the organization of a national bureau for the analysis and certification of pharmaceutical products, which has been jointly proposed by the American Medical Association and the American Pharmacal Association, is worthy of the united support of the profession. The most reliable of large manufacturing chemists and pharmaceutists are friendly to the enterprise. Those who are not, have reason to fear the searchlight of laboratory investigation. An obstacle to the legislative control of patent medicine has always been the self-interest of a commercialized newspaper press, and the medical profession of the state should therefore take heart of hope from the fact that a higher sense of public duty is growing up in the profession of journalism, and it should applaud the announcement that, among the more representative newspapers, the Minneapolis Evening Journal has purged its columns of objectionable medical advertising.

6. Most vital of the needs of the present hour, for the advancement of scientific medicine, is the cultivation and exercise of a therapeutic conscience in the practice of the profession, a conscience which shall disdain the use of drugs which are not clearly indicated, which shall hesitate before the clear infliction of therapeutic harm,

Digitized by Google

which shall administer medicines only when a definite therapeutic purpose is illuminated by the physiologic action of the drug, which shall search for the only scientific reason for any therapeutic measure in the aid and comfort it will afford to the tissue-cells in their life and death struggle with disease.

Welcoming the departure of modern medicine from the limitation of drug treatment, we may, at the same time, relieve it from the opprobrium which now rests upon the ordinary administration of drugs, and we may save the rising generation of medical men and women from the therapeutic nihilism which is, at present, at once our scientific impediment and reproach.

Digitized by Google

OCCIPITAL MENINGOCELE WITH A REPORT OF A CASE OPERATED UPON

A. E. BENJAMIN, M. D.

Minneapolis

A meningocele of the occipital region is the most common among the cephaloceles. These growths are essentially congenital, and contain cerebral fluid and sometimes nerve tissue, while an encephalocele contains more or less actual brain substance. These tumors of the cranium may occur along the middle line of the skull. The sincipital variety are located near the root of the nose, and communicate with the orbital or the nasal cavity. The occipital variety is always the largest. Meningoceles may exist in either place, but the posterior is more common.

There are two varieties of the occipital, the superior, or the one above the spine, and the inferior, or the one below the spine. The pedicle may be small or broad; some are sessile. The integument may be red in spots or generally quite vascular like an angioma. They are frequently covered with scalp tissue and hair. They are soft and fluctuate; pressure decreases their size. Such pressure is seen to increase the intracranial tension, noted by the bulging fontanels. Pressure may cause the patient to close the eyes or cry. Extreme pressure produces pain and at times vomiting or convulsions. The patient often cannot lie upon the tumor without becoming restless. Crying or straining increases the size of the tumor and increases the vascularity. During sleep and quietude the tumor is smaller and less tense.

The cause of meningocele is really not known, but it is a defect of nature in failing to close the cranial cavity, which results in the bulging out of the meninges. An in-

Digitized by Google

creased amount of cerebral fluid in the ventricles or beneath the meninges favors the protrusion of the encircling membrane, as in a hydrocephalocele. There may be a limited ventricular dropsy, which by pressure at some certain circumscribed portion of the skull expands and separates the cranial bones, and this forms a hydrocephalocele, thus an encephalocele may be produced later by the re-absorption of the fluid, or a meningocele by a recession of the cerebral substance into the cranial cavity. Another theory is that they originate early and by pressure they arrest the skull development.

Meningocele may be due either to the extrusion of the dura mater through pressure of the subdural fluid, or by a bursting of a hydrocephalocele, or is a remnant of a disorganized encephalocele. A meningocele might spring from the cerebral ventricle in the earliest stages of development, as a mere membranous cyst without brain substance.

These tumors may rupture during delivery or spontaneously some time afterwards; in such a case a purulent meningitis often follows.

TREATMENT.

The treatment of such growths has been divided according to Bryant into: (1), ligature; (2), puncture; (3), injection; (4), excision. Some authors advocate the placing of a shield over the tumor so as to prevent any accidental injury. Compression has been tried with some satisfaction.

Parker states that not much should be expected from any method or form of treatment. These cases usually die shortly after birth, or later of marasmus.

According to the statistics of the Prague Children's Hospital in 1899 thirty-eight per cent of children have been saved by operative measures. We should therefore attempt to cure them by such methods, as they are nearly all sure to die without. With the modern facilities for doing surgical work, and on account of the more exact diagnoses, we may expect far better results than these statistics show.

Digitized by Google

CASE

The case which I wish to report is as follows:

Mrs. A——, aged 24, gave birth to her second child on July 19, 1903. The child was comparatively well developed at birth, but had a mass extending from the occipital region.

On August 25th the writer first saw the case, at which time the tumor was about the size of the child's head, and was soft and fluctuating. It was covered with scalp and fine hair, equal in quantity with that on the head, with the exception of one point, about one and one-half inches square, where there was a scab. This point was injured at the time of birth, and from this surface there exuded a serosanguineous fluid. The area had become slightly infected.

This injury did not extend into the tumor mass, but was superficial. The tumor was greater in extent in the perpendicular direction. Pressure upon the mass increased the intracranial tension, and produced some bulging at the anterior fontanel. The pedicle was about three and one-half inches in the perpendicular direction, and an inch and a quarter transversally. There was an opening into the cranium, below the occipital protuberance, an inch by one-half inch. The covering of the tumor mass was quite tense. A fluoroscopic examination revealed no variation in the density of the tumor mass.

Firm pressure upon this mass caused some pain, and made the infant cry. Straining and crying seemed to produce more vascularity, and more fullness appeared at the fontanels.

The mother stated that the child seemed otherwise well. It nursed, and with the exception of being somewhat irritable, was as other children. There was a peculiar look to the child, however, which was produced by the weight of the tumor drawing up the scalp and elevating the upper lids. The sclera above the pupil showed more prominently, and the head was thrown forward in consequence of this weight when the child assumed the erect posture. The head being

Digitized by Google

inclined in this position the tumor would partly rest on the neck and shoulders.

The operation for this growth was performed August 28, 1903, the child being just five weeks and five days old.

After a thorough cleansing of the head and the tumor mass, a rubber catheter for a ligature was placed around the pedicle of the tumor. This did not seem to affect the child in the least, but as it did not hold the tissue firm enough, clamps were substituted. The jaws were encircled by rubber tubes, so as to prevent injury to the tissues. A circular incision was made outside the clamps on the pedicle. The scalp tissue over the pedicle was dissected from the underlying membrane. The clamps, which were placed on the whole pedicle mass, were then transferred to the pedicle proper, close to the skull, and others were placed on the scalp flaps to prevent hemorrhage. The tumor mass was then cut away. The tissue tore easily, and there was some leakage at the upper portion of the pedicle proper. This portion was sutured and ligated, and the rest of the pedicle transfixed with catgut sutures. The pedicle was trimmed up, and the scalp tissue stitched over the pedicle by continuous suture in layers so as to make a firm closure.

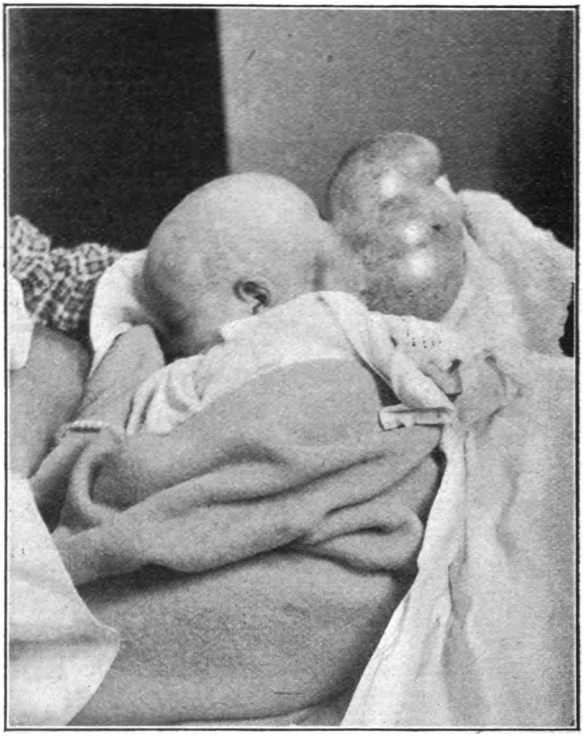
The child took very little chloroform in the beginning of the operation when the scalp tissue was cut through, also in the last part of the operation when the scalp tissue was trimmed up and sutured. Scarcely any was used during the interval. Very little blood was lost, and the little patient was in a good condition at the end of the work. It was impossible to dissect the friable tissue at the base of the pedicle away from the occipital bone, as it extended high up on the bone and was firmly adherent to the cranial opening below the occipital protuberance, consequently the transfixion method was employed, instead of a thorough dissection, as we did not wish much fluid to escape.

The child was in fairly good condition for the operation; the temperature being 98.8°. At 6 p. m., which was eight hours after the operation, the temperature went up to 104°; the pulse was 156, and the respirations were about 90. The

Digitized by Google

pulse was quite weak, and a hypodermic of strychnine was given. At 8 p. m., ten hours after the operation, the temperature was 105.6°. The child had nursed a little twice since the operation, but had cried at intervals as if in pain.

I here show you photographs of the child taken before the operation, Cut No. 1.



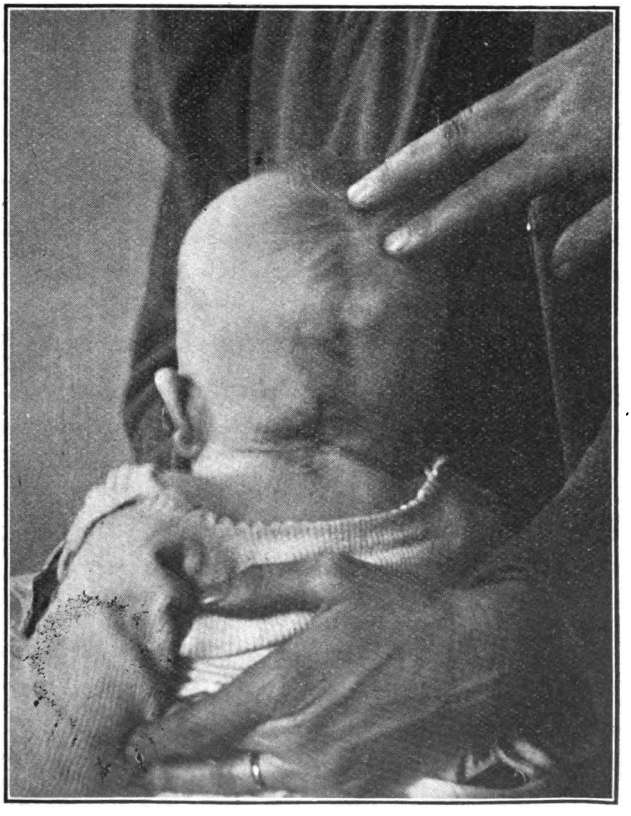
Cut No. 1

At 8 a. m. the next day, twenty-two hours after the operation, the temperature was 105.2°, respiration very rapid, and the child was very restless. Ice was kept on the head almost continually. A hypodermic of strychnine was again given. At 3 p. m. the temperature had gone down to normal, but rose again in the evening to 100.2°. This irregular temperature line is noticed on the chart, and

Digitized by Google

will be seen to range between 99.5° and 105.2°, until the fourteenth day after the operation, when it remained nearly normal. The child began to nurse more each day and although it cried occasionally on account of pain, it showed undoubted signs of improvement three days after the operation. About the fifth day after the operation there appeared to be a redness around the scalp sutures. There was some little pus later. Part of this subcutaneous tissue sloughed, but the parts became healthy after a time and healed with some scar formation.

This sudden rise of temperature after the operation can only be accounted for because of the irritation to the heat center.

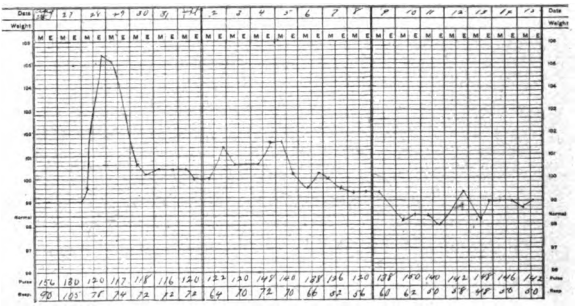


Cut No. 2

Digitized by Google

Cut No. 2, taken about two months and a half after the operation, shows the result. It shows the scar tissue and line of suture.

At the present time the child seems to be quite well, but it has not entirely overcome the effects of the weighty tumor, as it does not have all the power to control the head that an ordinary child of its age should have. The size of the opening in the cranium has not perceptibly decreased.



Temperature Chart

Digitized by Google

HYPERTROPHY AND INFLAMMATION OF THE MALE BREAST

A. R. COLVIN, M. D.

St. Paul

Tumors of the male breast, although less common, occur in as great variety, as in the female, and furnish the same difficulty of diagnosis. I wish to report two cases of mammary enlargement in the male:

The first one in a patient aged 45 enjoying good health and with nothing in his past history bearing upon the condition, first noticed a swelling in the right breast in December, 1899. The only sensation felt in the breast was that of prickling. The breast was uniformly enlarged measuring about two inches in diameter and three-fourths of an inch in thickness, was disc-shaped, very hard, and surface even. It could be moved freely over the underlying muscles, but the skin was indefinitely adherent to it. There were no enlarged glands in the axilla. Three weeks later a piece was removed under local anesthesia, and submitted to microscopic examination, and a report of carcinoma returned. A more radical removal was then undertaken. About four months later the patient felt a prickling sensation in the left breast, and enlargement took place in it. Upon examination the condition was found to be very much as in the breast first affected. On the left side, however, there were several enlarged glands in the axilla. One of these was removed for examination, the findings being chronic inflammation. This breast was also removed, and a histological diagnosis of carcinoma made.

A short time after this a physician conversant with the case just reported, showed me his own breasts. They

Digitized by Google

were at that time in very much the same condition as the one above described, except that they were quite tender. They remained hard and tender for a month or two, then became larger and softer, to eventually decrease in size, and return, as far as naked eye appearance goes, to a normal condition. The doctor's wife was pregnant, and the enlargement subsided coincidently with the birth of the child. He tells me that he is nauseated in the early months of his wife's pregnancy.

The development of the male breast up to the time of puberty is the same as that of the female. At this time the female breast undergoes further development, while that of the male comes to a standstill. Retrogressive changes begin in the male at 30; after this time histological examination in the line of the nipple shows only two or three ducts, supported by a few strands of connective tissue between the ramifications of which is a rich supply of fat. The gland is a very rudimentary affair, indeed, and with the naked eye the gland tissue is barely perceptible.

The atrophied female breast after the menopause still shows acini in lobules and dense fibrous tissue.

The histological findings in the case above reported are as follows:

The increase in size is found to be due to increase of both epithelial and connective-tissue elements, the epithelial parts consisting of ducts lined with multiple layers of cubical cells. In places the epithelial proliferation amounts almost to papillary growths into the lumen, and in these places the cells approach the columnar type. The lumina of the ducts are in places filled with the cellular detritus, seen in so many pathological conditions of the mammary gland. The stroma consists first of a fibrocellular connective tissue and of a loosely meshed, very cellular tissue whose intercellular substance takes the stain poorly. This tissue surrounds the ducts in a circular manner in unusually large amount. It corresponds to the periductal and intralobular tissue which exists

Digitized by Google

in small amount in the normal breast, and is the same kind of tissue found in the pericanalicular fibroma. It exists in this case in large enough amount in places to simulate very closely the above-named tumor. In these supporting tissues is found a very greatly increased number of capillary blood vessels, around which, as seen both in cross and longitudinal section, are very many round cells. These capillaries are found in unusual number running up to and communicating with the vessel surrounding the duct. There is in fact a very general round-celled infiltration of the entire stroma, and the interlobular tissue looks like indurating granulation tissue.

I may say here that the picture is largely one of hypertrophv and chronic inflammation. Hypertrophy of the breast, for the purpose of lactation, presents a very different histological picture from the hypertrophy occurring apart from that period. In the former there is an increase of true glandular tissue, the acini being increased both in number and size; the peculiar periductal and intralobular tissue has almost disappeared.

In the hypertrophy occurring apart from lactation there is an increase of the periductal tissue. It is an increase of constituents in the proportion in which they are found in the young girl's breast. There is at that age an imperfect development of acini, the gland consisting largely of branching ducts with some lateral budding. In this form of hypertrophy the newly-formed glandular tissue should be capable of lactation in the event of pregnancy. This form of hypertrophy has been spoken of also as diffuse adenoma. A circumscribed form has also been described. Probably it is a true adenomatous formation.

Concerning the mastitis part of this condition. The number of names given to chronic mastitis indicates the uncertainty of opinion regarding its nature. They are—

1. Chronic cirrhosing mastitis.—Billroth.
2. Chronic cystic mastitis.—Konig.

Digitized by Google

3. Intra-acinous cystic epithelioma.—Reclus.
4. Cyst adenoma.—Schimmelbusch.
5. Cystic disease of the breast.—Bryant.
6. Plexiform fibroma.—French writers.
7. Fibrous hyperplasis with retention cysts.
8. Periductal mastitis.
9. Chronic interstitial mastitis.

Ziegler in his last edition dismisses the subject as follows:

"As well as tuberculous and syphilitic mastitis there is a chronic mastitis formed partially of granulation tissue and partly due to indurating connective tissue whose etiology is unknown."

Banks says it is not a sequel of acute inflammation.

König believes that it is an independent disease, and due to changes originating within the lumina, the interstitial changes being secondary, the minute cysts not being always due to pressure of increasing interstitial tissue.

Greenough and Hartwell, in the Journal of Medical Research for 1903, after analyzing a large number of cases, think that mastitis as applied to this condition should not imply an inflammation of bacterial origin, but rather an increase of fibrous tissue of other than local tumor origin, and that the formation of cysts and proliferation of the epithelium are the striking features of the disease.

All are agreed that chronic cystic mastitis is prone to carcinomatous change.

The breasts of infants are very commonly the subjects of swelling and redness about the fourth or fifth day. Kölliker explains this by the physiological development of the breast at this time, the breast at birth consisting simply of solid columns of cells. In a few days the central cells of these columns undergo degeneration, and the hypremia and swelling are due to changes brought about by this process.

Digitized by Google

At puberty, in both boys and girls, a similar inflammatory-like swelling is frequently seen. This again occurs at a time when physiological changes take place in the gland.

The onset of lactation is very constantly marked by symptoms of an inflammatory character. It is still a matter of controversy as to whether this is due to bacterial invasion or to the disturbance incident to so great an increase of function.

The case, the histological report of which has been given, cannot be said to conform to the definition of chronic cystic or interstitial mastitis recognized as an independent disease, nor can it be said to be pure hypertrophy.

Among a very large collection of tumors and enlargements of the male breast by Schuchardt are 60 cases in males of 16 to 20 years of age in which the clinical description is pretty much like ours. In a few the symptoms were quite acute. He classified these as a mixture of hypertrophy and inflammation, but as they all got well in a few weeks no histological description is given.

Shields, in his book on diseases of the breast, refers to a specimen in the museum of University College Hospital whose gross and minute description is given, and corresponds very closely to our case. He says the condition seems to be one of hypertrophy with great overgrowth of fibrous tissue, that the causes of induration in the male breast are often obscure, and that some cases in our museums termed hypertrophy of the male mamma are likely enough chronic inflammation. The nature, therefore, of enlargements of the male breast which I have been able to find described whose clinical description corresponds to the one reported, has been benign. Occurring, however, at the age when the mammary gland should undergo atrophic changes makes tumors of the breast suspicious of vicious possibilities. There is already a change in the cells within the lumina of the ducts, indicative of an unusual epithelial activity, which

Digitized by Google

is found neither in lactation nor in the ordinary hypertrophy, which, according to Borst, must be an imitation of normal breast structure as found in the virgin breast. This certainly does not possess that simple picture. There is sufficient departure from it to warrant us in saying that the hypertrophy is at least atypical.

Von Angerer in the "Hand-Book of Surgery" by Von Bergman says that the benignancy of many mammary tumors is only a relative one, and that from this standpoint we are justified in the early removal of all mammary tumors. The real meaning of this would seem to be that we are not yet always able to recognize malignancy. Morphology does not reveal the life-history of cells.

Hansemann says a difference in the parenchymatous cells of hyperplastic gland growth, ordinary adenoma, and malignant adenoma are not to be made out. He further says in his book on the "The Microscopical Diagnosis of Malignant Tumors" regarding the excising of pieces of tissue for histological diagnosis; "In characteristic cases a successful morphological diagnosis can be given, but these are the cases where the clinician without the aid of the microscope can with certainty differentiate." "For cases on the boundary line of malignancy and benignancy the microscope is also usually doubtful, and exactly in these cases an error in diagnosis is worse than no diagnosis, for it frequently influences the surgeon to adopt a course which he has not originally concluded to follow, and which may result in injury."

A celebrated clinician, questioning his students as to how he would make a diagnosis in the case of a tumor of the thigh which was shown to him clinically, received the reply that he would cut a piece out to look at it under the microscope. The teacher informed the student that we use the microscope to see what a tumor looks like after we know its nature.

Banks says that if the microscope confirms the naked-eye appearance well and good, but when they differ the

Digitized by Google

clinical history and gross appearance on cutting into the tumor should decide the surgeon as to his course. Shields says practically the same thing.

The etiology of malignant tumors is not yet known, and until that is known we shall probably be uncertain as to the morphology of malignancy in tumors. The growth of the so-called benign tumors is just as wonderful as the growth of malignant ones, and it is not much wonder if the one is frequently simply a forerunner of the other.

Quoting Hansemann again: "So long as a tumor is in the 'becoming' stage we cannot tell what it may become, it is only carcinoma when it plainly has that structure." One must remember, however, that several tumors formerly classified as benign have been found to undergo metastasis.

From what has been said it is scarcely necessary for me to add that the microscope furnishes a valuable part, but only a part, of the evidence to the surgeon in his summing up for and against malignancy in tumors of the breast.

Regarding the treatment of this condition: In the case of the physician reported, the glands probably went through a series of changes from hypertrophy to involution lasting about six months.

In the other case, after an observation of about the same length of time of the second breast, no evidences of involution were seen. In this case too the breasts were not simultaneously affected.

The patient's age was long past that at which atrophy of the glands occur in the male.

If, then, a condition of this kind, after six or eight months' observation, showed no signs of involution, it might fairly be classed among the conditions with unknown possibilities, and its removal considered justifiable; the more so that the undertaking is a minor one, and can be easily done under infiltration anesthesia.

Digitized by Google

THE HEART IN ACUTE INFECTIONS

J. G. Cross, M. S., M. D.

Minneapolis

Acute infectious diseases have a tendency to produce degenerative and inflammatory changes, in other tissues than those primarily attacked by the infectious agent. Kidney, liver, spleen, and voluntary muscles are especially liable to undergo degeneration, and heart tissues are not excepted from this process. The causation of cloudy swelling in different organs in such diseases as septicemia, typhoid fever, pneumonia, scarlet fever, influenza, and acute rheumatism which are attended by prolonged fever, has been much discussed. Welch's[1] experiments seemed to show that prolonged high bodily temperatures are capable of producing tissue degeneration. Naunyn, by slightly modifying the conditions surrounding his animals, kept them at as high temperatures for twice as long a period, without finding change in the same organs, and it is well known that cloudy swelling in the heart, and other tissues, takes place oftentimes in cases of diphtheria which have had no fever at all, and this occurs also sometimes in a febrile septicemia and typhoid. The fact that the nature and extent of degenerative changes depend upon the character of the infection rather than upon the height of the temperature, indicates that some product of the infectious agent acting through the circulation is the cause. That in different infections there are specific toxins is shown by the selection of one group of tissues in one disease, and not in another. For example, endocarditis and pericarditis are common in rheumatism, while in typhoid fever they are rare.

Cloudy swelling is evident in the epithelium of the kidney and intestine after only a few hours of some toxemias,

Digitized by Google

but as a rule several days of the same infection must elapse before the heart structure is similarly affected. Cowan[2] concludes that the poison causing the change is more concentrated in the excretory organs.

None of the heart tissues are exempt from the toxic action of infectious disease. Muscle, connective tissue, endothelium, or blood-vessels may be attacked, but by far the most frequent, as well as most important, degenerative change, is that which takes place in the muscle wall. For this reason, and also because endocarditis and pericarditis are already so much better understood, it is intended to discuss especially the muscle and connective tissue changes in the heart, which occur in acute infectious disease, together with their immediate and remote effects.

While acute infections produce in some instances both inflammatory changes in the heart, and also granular degeneration, cloudy swelling, and fatty changes, that most commonly found, and as a rule first produced, is cloudy swelling of the muscle fibres, parenchymatous degeneration. In its simplest form there is swelling of the fibers, the striæ disappear, and small granules are seen in the cell, which can be distinguished from fat granules by their reaction to ether and acetic acid. It is still unsettled whether cloudy swelling in the muscle cell is an antecedent stage of fatty change. Fatty and hyaline degeneration are found, however, more often in cases of severer clinical type and more prolonged course.

The heart may not show any alteration in gross appearance unless parenchymatous change is general and considerably advanced, when the muscle looks pale, is somewhat soft, and the cavities perhaps dilated. Some writers refer to this condition as heart softening. Degenerative changes in the nuclei of the muscle cells, and the development of vacuoles and segmentation in the muscle fibers are also seen. In the interstitial tissues a round cell infiltration, particularly about the blood vessels, is the most common evidence of a toxic influence. In the blood vessels, the changes found include an obliterating endarteritis from swelling of the

Digitized by Google

intima and cellular infiltration of the outer coat. Hyaline degeneration of the media occurs, and hyaline thrombi in the smaller vessels may be present.

Degenerative changes in the nerve tissues of the heart have been demonstrated, especially in tetanus and diphtheria. While it is common to find in the same heart an inflammatory process, and also primary degeneration, there is no question but they may be the separate reactions of different tissues to the same toxin, if not to different and distinct bacterial products. At the same time it should be remarked that the muscle near an inflamed pericardium is always degenerate, with consequent lessened heart power, and changes in the nearby connective tissue of one sort or another are often present to still further hamper the action of the muscle cells.

SPECIAL PATHOLOGY

Endocarditis and pericarditis are prominent features of acute rheumatism, yet affections of the muscle wall of the heart are as common, and quite as important. Poynton[3] has classified the latter as

A. Affections of cardiac muscle.
   1. Fatty degeneration of muscle fibers.
   2. Loss of striation.
   3. Nuclear changes.

B. Affections of blood vessels.
   1. Cellular exudation around blood vessels.
   2. Exudation into, and swelling of interstitial tissues.
   3. Perivascular fibrosis.

In 100 cases of rheumatic fever, 23 were found to present signs of alteration in the muscular wall. The muscle cells themselves show the most extensive degeneration. Inflammation of endocardium and pericardium are common, and in fact usual, accompaniments. Dilatation of the heart may follow upon the muscle degeneration. It is present as a rule in pericarditis, and is then responsible in a large measure for the great enlargement of cardiac dullness which occurs.

Digitized by Google

The most common, and sometimes the only heart change produced by diphtheria is parenchymatous degeneration, consisting in loss of striation, granular, fatty, and hyaline changes in the muscle cells affecting a greater or less number of fibers. There is great difference in the size and extent of lesions in specimens taken from different parts of the heart, as well as from different cases. The first parenchymatous changes are noted after the disease has lasted five to eight days. The more severe infections and those of longer duration lead to greater defects in structure. Interstitial changes also occur, more often in foci under the pericardium. There is also a degeneration of nerve tissues in the heart in diphtheria shown by later staining methods.

It is a frequent occurrence to find that there is a general parenchymatous degeneration of muscle fibers in hearts that show little or no macroscopic change from typhoid fever. Endocarditis and pericarditis are extremely rare. In typhoid fever there also appears to be a true myocarditis, with interstitial inflammation, and in some cases an obliterating endarteritis, considerably narrowing some of the branches of the coronary circulation, with resulting degeneration in the tissues whose nutrition is thereby diminished.

Endocarditis and pericarditis are relatively frequent in pneumonia. The heart muscle is not, as a rule, degenerated, unless in prolonged cases, but when it is structurally changed, dilatation is much more apt to follow.

Granular, hyaline, and vacuolar degeneration may result in scarlet fever (Ziegler[4]). V. Jürgensen[5] states that a wall endocarditis, leaving the valves free is a frequent occurrence in the disease. In severe cases dilatation may come on early in the illness. Influenza and septicemia characteristically cause fatty degeneration in the heart muscle. The gonococcus has been cultivated from ulcers and vegetations on the heart valves.

EFFECTS

The effects of muscle defects in the heart are far-reaching. Especially in endocarditis and pericarditis the prognosis depends upon the condition of the heart muscle. If

Digitized by Google

the muscle is attacked by the toxemia of acute infection the immediate effect is to cause an amount of weakness of the heart in proportion to the extent of tissue involved and the degree of the structural change. These effects are found to vary with the intensity and duration of the infectious process. Neither inflammatory nor degenerative changes in the heart muscle in the course of acute disease give any regular series of symptoms or physical signs. Degenerative changes alone are difficult to recognize during life, but when in typhoid fever, septicemia, rheumatic fever, influenza, scarlet fever or pneumonia, the pulse becomes more frequent without a corresponding rise in the temperature, we are justified in suspecting some myocardial weakness. Of still more significance are irregularity and inequality of the pulse coming on under the same conditions. Next, the volume and strength of the first heart sound are diminished, and a soft, compressible, small pulse follows. At the same time these signs cannot be referred absolutely to progressive muscle changes since the same effect may be caused by toxic impression of the vasomotor centers. In pneumonia this is frequently observed. In diphtheria it is impossible to distinguish clinically between lesions of the pneumogastric nerve in cardiac paralysis, and myocardial degeneration; death may occur from either cause. If myocarditis is present, there may be precardial distress. When dilatation follows, there are tangible signs in addition to the symptoms of acute cardiac insufficiency. Generally, with an increased frequency and lowered tension of the pulse, the apex beat may be observed to be slightly further to the left, the first sound becomes shortened, approaching the second in quality; the second pulmonary sound is more accentuated and in many instances the soft blowing murmur of a relative insufficiency systolic in time, is audible just inside the nipple. The opinion appears to be increasing that the dilatation of the heart in pneumonia is largely due to structural changes in the heart wall which allow it to stretch, brought about by the toxic action of bacterial products, rather than to the respiratory obstruction. The occurrence of sudden death in

Digitized by Google

pneumonia is probably more often caused by weakness of the heart muscle than by embolic processes, so that irregularity of the pulse before the crisis is a bad prognostic sign. On the other hand the murmur of a relative insufficiency is not necessarily serious, when present in a heart otherwise acting with regularity. Sudden death has occurred from cardiac weakness in influenza.

The more remote results of the toxic effects upon the heart in acute infectious disease, are the production of chronic changes in the different structures, and especially chronic fibroid processes. Regeneration of the muscle cells of the heart takes place to some degree, less, however, than in corresponding tissues in other parts of the body. If the degenerative changes have gone too far, instead of regenerating, the place of the cell is taken by connective tissue, with resulting loss in heart power. The acute myocardial inflammations, with infiltration by round cells near the blood-vessels, and into the interstitial tissues, also increase the fibroid elements in the heart wall and interfere with its activity. The changes in the blood vessels of the heart are particularly serious in their effect. Endarteritis obliterans, occluding the lumen of vessels supplying cardiac muscle, almost surely causes a grave form of acute or chronic degenerative process, and is one of the commonest factors in producing fibrous myocarditis. Thayer[6] examined 182 patients who had previously passed through an attack of typhoid fever, and a control series of individuals of about the same ages. The typhoid series showed unmistakably a tendency to heart and arterial disease.

In the recognition of the myocardial changes of acute infections, it is important that the systematic examination of the heart be a matter of routine from the beginning. Slight changes in the pulse as well as in the area of deep cardiac dullness give warning of what is to follow, and call for treatment. In acute rheumatism progressive acute dilatation is one of the best signs of acute myocarditis. Poynton says that great enlargement of cardiac dullness which may occur in rheumatic pericarditis is more often the result of

Digitized by Google

dilatation than of a large effusion. An effusion large enough to oppress the heart in acute rheumatism he considers very rare. It has happened that a paracentesis undertaken to remove the effusion of a pericarditis has ended fatally through puncture of the dilated heart wall.

In typhoid fever two especial types of heart weakness are encountered; one comes on during the second or third week of the fever, and the other during convalescence. The close observation of patients throughout convalescence and regulation of at least the first weeks of exercise, are necessary if the heart is to be properly guarded. Rapid and irregular heart action, particularly a disturbance out of proportion to the amount of exertion, as pointed out by Babcock[7], indicate a muscle defect and call for caution.

Treatment of the heart conditions occuring in acute infectious diseases divides itself into three parts: 1. Preventive; 2, that of the acute attack; and 3, that of convalescence.

The prevention of heart involvement in infectious diseases is necessarily the treatment of the acute disease itself. In rheumatism the decided impression early by salicylates undoubtedly does much to save the heart from harm. The early use of antitoxin does the same, or more, in diphtheria. Complete rest of body and mind are essential when symptoms of acute heart weakness are observed. The patient should be disturbed as little as possible even for bathing or the giving of medicines. Thompson[8] advises that the patient with pneumonia be prescribed periods of absolute quiet of two and three hours.

In the use of drugs for acute heart weakness due to myocarditis or degeneration, there can be no rules of treatment. Digitalis, if used, must be given understandingly, or a threatening dilatation may be hastened when the heart wall is extensively involved. Strychnin hypodermically is of more general application than the other drugs.

During convalescence the avoidance of overstrain of the heart, and the maintenance of the best possible nutrition are most desirable. To this end change of air and scene

Digitized by Google

are useful. After the acute attack has passed, those who have shown symptoms of myocardial weakness in acute infectious disease should be under observation. If signs of dilatation and weakness of the heart persist, treatment directed toward their relief should be continued. Resistance exercises are of benefit in some instances. Saline and effervescent baths according to the Naunheim method may also be of use to bring about a reduction in the size of the heart and more regular heart action.

1. Welch—Med. News. April and May, 1888.
2. Cowan—Jour. Path. and Bact., 1903, ix, 87.
3. Paynton—International Clin. 13th, iii, 226.
4. Ziegler—Lehrb. der allg. Path. 1902, II, 30.
5. Jürgensen—Ant. Scar. Fever. Nothnagel's Encyl.
6. Thayer—Am. Jour. Med. Sci. March, 1904.
7. Babcock—Dis. Heart and Art'l Sys. 1903.
8. Thompson—Jour. Am. Med. Asso. March 19, 1904.

DISCUSSION

DR. L. W. DAY (Minneapolis): I have in this connection a very interesting case of tubercular pleurisy. The temperature ran high for a week or ten days. When I first saw the patient she had a very large effusion on the left side which I drew off. Almost immediately following the withdrawal, the pulse became very intermittent, and gradually worked up to 140 beats a minute, maintaining its work of an intermittent character. Rest in bed, digitalis, and strychnia were my remedies, but I could see little change. Only two or three days ago I started in with saline baths, and am continuing the treatment. I thought the case might be interesting in connection with this paper.

DR. L. A. NIPPERT (Minneapolis): Since the time of Hippocrates the condition of the heart has been the main criterion of the condition of the patient. To sustain the patient in acute infections means to support the heart until the disease has run its course. The doctor has given us a very excellent paper on the pathological conditions of the heart in acute infections. To know when to stimulate and not overtax the already weakened heart, is one of the chief considerations of successful treatment. As the doctor has mentioned, I think the tendency is to consider that a high temperature is not as fatal to the strength of the heart as it was formerly supposed to be, but that the danger of weakening the heart muscle comes from the toxins carried in the blood-stream. One point was not mentioned by the doctor, and that is the tendency to em-

Digitized by Google

bolisms in acute endocarditis, complicating acute infections. An endocarditis may be so slight in its physical manifestations that it is overlooked until sudden death or multiple infarcts disclose the true pathological conditions. The presence of systolic murmurs over the mitral and pulmonary areas in acute infections is very common, and, barring other signs of valvular disease, they are to be considered as temporary manifestations due to anemia and dilatation. In estimating the strength of the heart, we are guided, first, by the condition of the pulse; second, by the cardiac impulse; third, by the comparative loudness and rhythm of the first and second sound. Of the numerous remedies which will stimulate the heart's action, coffee and camphor have not received as much consideration as they are entitled to in sudden heart failure. If there is the slightest indication of beginning heart failure, absolute rest, on the back if necessary, continued for days or weeks, is of the greatest importance. It has been my unfortunate experience in several cases that neglect of this precaution was followed by sudden death.

DR. SOREN P. REES (Minneapolis): I do not think we pay enough attention to the convalescence of acute cases. When the crisis is past and the temperature goes down in a week or ten days we are inclined to let our patients go, and when they complain of weakness and shortness of breath on slight exertion we tell them that it is natural, and we let them run about and shift for themselves as best they can. The fact is, the heart muscle is so weakened by the illness that, instead of getting strong by running about, they do themselves irreparable injury oftentimes. As good care, with rest, should be insisted upon during convalescence as was given during the acute attack until the heart muscle has become sufficiently nourished and strong, and in that way we avoid a feeble heart later, and perhaps add many years of health to the patient's life.

DR. J. G. CROSS (Essayist): I want to thank the gentlemen for discussing the paper. I have nothing further to add, except to emphasize a few points which perhaps were not sufficiently emphasized in my paper. I purposely left out the discussion of heart failure in diphtheria. I wish to bring out the fact that after infection is past the heart must be observed for a long period. We must watch for the subacute heart changes which lead to chronic heart changes and chronic myocarditis. The symposium of yesterday afternoon showed clearly that the onset is apt to be insidious. The examination of the heart after infectious disease is by no means a useless procedure. The patient ought to understand that there is danger for some time afterward, and especially after undue exercise.

Digitized by Google

THE RECOGNITION OF TUBERCULOSIS AS A CONTAGIOUS DISEASE

LESTER W. DAY, M. D.

Minneapolis

Tuberculosis has been considered in some lands a contagious disease from time immemorial; but in many minds, and even to a surprisingly large extent, to this day has it been looked upon as a matter of heredity. England, in the year 1836, concluded that there was a relationship between cases of tuberculosis and the bad hygienic condition found in the usual home and shop of the worker. She therefore took legal steps providing for more sanitary homes and workshops, and in addition caused to be founded a number of hospitals and dispensaries for the treatment of the tubercular. Partly in consequence of these imperial acts, we may say, the returns of Great Britain show that the mortality from tuberculosis has been diminished from 38 per thousand in 1832 to 14 per thousand of population in 1894.

It was Villemin who first placed the infective nature of tuberculosis on a solid experimental basis. Conheim and Salamonson confirmed his work, but it remained for Koch, in 1882, to isolate the germ, and to prove that it was invariably associated with tuberculosis. And then for the first time, when the cause of the disease and the method whereby it is spread was understood, could intelligent steps be taken toward blotting out the "White Plague." But could anything better illustrate the aversion of mankind toward change than the resistance offered, both within and outside the profession, to preventive measures?

Professor Koch said to Dr. Briggs of New York several years ago: "The adoption in Germany of such measures as are already in force in New York City will not be possible

Digitized by Google

until the generation of medical men now in control have passed away. Not until a younger generation has appeared, which has had a different scientific training and holds views more in harmony with the known facts regarding the etiology of tuberculosis, will it be possible, in my opinion, to bring about an intelligent supervision of this disease."

Dr. Osler remarked at a recent medical conference as follows concerning his ideas of the treatment of pulmonary tuberculosis by the civil authorities: "Now, what is the remedy? It is simple; it is very easy. It is so simple and easy that we won't get it for a good many years. It is a sad thing to think of, but it will be five years yet before we get a law compelling notification of cases of tuberculosis to the health board of Baltimore."

In the year 1898 Sir Richard Thorne, the Medical Officer to the Local Government Board of Great Britain, in the Harbin lecture on "Administrative Control of Tuberculosis," pronounced definitely against this proposition, on the ground that the hardship of the individual which would follow notification and the enforcement of proper regulations would be so great as to render this measure unjustifiable. In the same year the Academy of Medicine of New York, through a special committee, declared that the measures adopted by the Department of Health of New York City regarding notification were at that time inexpedient and inadvisable. Every important medical society in New York City followed the lead of the Academy, and proclaimed the measure unwarranted.

In 1899 a committee of the Academy of Medicine of Paris, in reporting against a similar proposition, urged that, as the public did not regard tuberculosis as being contagious or in the same class with contagious diseases, but considered the disease hereditary, the public would not accept such a legal enactment without protest and resistance, and, furthermore, the committee held that in a family unwilling to follow instructions, restrictions would be impossible.

All honor should we give to Dr. Briggs of New York for the rare courage he has displayed in the face of such

Digitized by Google

universal condemnation. And more than his courage should we admire the rare tact and judgment that has enabled him to perfect his scheme of administrative control, and, by its success, convert the medical world to his way of thinking. To continue the quotation from Dr. Osler: "We all know that there should be notification and careful inspection in every single case of tuberculosis. It works no hardship to have the Board of Health know that a case exists in the family. It can be done easily and quietly without placarding or making the patient feel that he is a social outcast. It can be done properly and easily under systematic management."

The first society for the prevention of tuberculosis in the United States was formed in Pennsylvania in 1891. Since then, Maine, Ohio, Illinois, and Missouri have formed state societies; the cities of Buffalo, Cleveland, and Baltimore have local societies; Southern California has an antituberculosis league; and New York and Minneapolis have a tuberculosis committee. Lastly and of greatest importance is the Central International Bureau for the Prevention of Consumption. This bureau was founded in 1902, and is composed of members from all nations that will affiliate in the international crusade against tuberculosis. The headquarters of the committee is in Berlin, and at stated intervals there are meetings held for the consideration of the progress of the movement and for the suggestion of better methods. Corresponding members throughout the world keep the committee posted as to what is being done in the various countries, and the central bureau on the other hand keeps the various members in touch with the general progress.

Thus briefly I have attempted to sketch the general history of the antituberculosis crusade. The results that are being achieved by such reformers as Dr. Briggs of New York are doubtless very familiar to you all, so I will not weary you with a repetition. But with the hope that associations similar to the Minneapolis Tuberculosis Committee may be started in the various cities of Minnesota, an ac-

Digitized by Google

count of our organization and purposes seems in order. The movement started in the Minneapolis Medical Club about a year ago. A committee of three members was appointed to carry on the work. The idea of the committee was first notification; second, education; and, third, relief work for the tubercular poor. The Minneapolis Medical Club agreed to report their cases of tuberculosis to a central body, and to use its influence in the County Society to have it do likewise. Stimulated by this, the City Board of Health notified the local societies that in the future it would enforce the existing law relative to the notification of tuberculosis, and the local societies agreed to co-operate. At this time the City Board of Health took up the work of free examination of sputa upon condition that the physicians fill out a blank form for filing. Next the Committee petitioned the State Board of Health for record blanks and tubercular tracts, which favors were granted to us through its chairman, Dr. Bracken. Feeling the need of a special tubercular dispensary, we next petitioned for, and received from the State University, the use of the Free Dispensary. The next move of importance was the present of a nurse by a number of wealthy citizens, whose duty it was to visit and instruct the tubercular poor at their homes. By this time a great deal of enthusiasm having been aroused, a general committee, consisting of the Associated Charities, local and state Boards of Health, the various medical societies and influential laymen, was called together and the temporary committee of thirteen physicians and twelve laymen was evolved under the title of the Anti-Tuberculosis Committee of the Associated Charities. This committee was subdivided into executive, publicity, and finance committees. Being a large body its movements have necessarily been slow, and because they contemplate great things, time is required for their fulfillment. Another year ought to see Minneapolis well to the front in this movement, and the next few years should show a marked decline in the number of deaths from tuberculosis.

Digitized by Google

DISCUSSION

DR. J. G. CROSS (Minneapolis): As a member of this general committee, of which Dr. Day has spoken, I may say a few words about the work we are doing, and what we have in contemplation. This committee is composed equally of laymen and doctors. We are especially fortunate in having as members of the committee several of our more influential men in Minneapolis, and in the fact that they are taking a very great interest in the work. They are doing a great deal to stimulate others whose help we need. This committee, whose history was outlined by Dr. Day, has been subdivided into other committees. The nurse we have has been engaged in the work for several months under the direction of the Associated Charities in looking up cases among the poor who are unable to employ a physician, and encourage them to go to the free dispensary where there is an earnest committee of men expert in the early diagnosis of tuberculosis, or, if possible, referring them to their neighboring physician. The general committee, called the Anti-Tuberculosis Committee of the Associated Charities, has laid out lines for an aggressive campaign. It is too early yet to speak of the results. The organization was only brought about the first of the year, but it includes plans for educating the public, the registration of tuberculosis cases for statistical private use only, and the relief of the tuberculous poor, and is doing active work along all these lines. Just now the committee is engaged in planning for a temporary hospital, a tent hospital for the present summer, and we are assured that if the plan is practicable the money will be forthcoming. We are very fortunate in influencing people who can help us in this way. This is only the beginning of what we may do to prevent the spread of tuberculosis. We hope at succeeding meetings we may have more to report.

DR. C. A. KELSEY (Minneapolis): Dr. Day's paper should receive generous discussion, and if it does not it is not because we are not interested, but because there is nothing in the paper to which we can take exception. It has been a very interesting paper to me, and in connection with the statement or prediction of our president, that in one hundred years from now tubercular troubles would be rare, it certainly stimulates us to increased interest, and I want to say as an individual that I pledge this committee my hearty support, and that in whatever way I can serve in assisting the prevention or spread of this lamentable disease I shall be very glad to do, and I am sure in this I only voice the sentiment of our profession and members of this society. So as I said before, if the doctor's paper does not receive general discussion it is not for lack of interest we feel in the subject.

Digitized by Google

THE INDICATIONS FOR OPERATION ON ENLARGED CERVICAL GLANDS

WARREN A. DENNIS, M. D.

St. Paul

The only class of enlarged cervical glands offering much field for discussion as to surgical treatment is by far the most frequent and important, namely, the tubercular.

Those diseases which regularly cause a general enlargement of the lymph nodes, such as leukemia, syphilis, and Hodgkin's disease, may generally be at once excluded from consideration, because the glandular affection is simply a part of a constitutional condition, amenable either to medicinal treatment or to none at all. Malignant involvement of the cervical nodes is usually secondary to a local and readily recognized primary focus, and, as elsewhere, demands complete removal of all the accessible lymphatic channels in the regular line of advance. Enlargements due to acute septic infections require the usual surgical treatment of septic conditions, namely, incision as soon as the presence of pus is demonstrated. They are not in themselves a source of subsequent danger to the organism.

The acute infectious diseases which involve the mucous membranes of the head, such as influenza, measles, scarlet fever, whooping-cough, and the like, are of prime importance in relation to tuberculous infection of the cervical glands, because the irritation caused by them paves the way for infection with the tubercle-bacillus. This organism is distinguished for its ability, after a losing fight with the tissues, to lie encapsulated and dormant, and prepared at any favorable opening to commence the fight anew. A septic infection once stopped is ordinarily conquered, but a tuberculous process in a lymph node, as elsewhere, though apparently

Digitized by Google

ended, is for a long time liable to be lighted up anew by any irritation or inflammatory condition in the area drained by the node. Thus any catarrhal or suppurative condition of the scalp, face, mouth, tongue, gums, tonsils, eyes, ears, or upper air passages, offers a favorable point of entrance to the ubiquitous tubercle-bacillus. It has been shown that it is even able to pierce the normal mucous membrane and leave no sign of its passage, though this is doubtless a rare occurrence.[1]

A favorite point of entrance is the tonsil, which is usually infected in the tuberculous, and often in those having no other focus and showing no signs of it there. Carious teeth, too, present a particularly vulnerable spot. Finkelstein,[2] from a study of 456 cases of cervical adenitis, found only 20 per cent without them, while 41 per cent of the cases showed no other assignable cause.

The tuberculous lymph gland thus presents a problem entirely its own, and an extremely important one because of the great prevalence of this infection. Volland[3] states that 68 per cent of all enlarged cervical glands are tubercular, while Nicoll places the number at 80 per cent.

A study of the treatment must be based upon the pathology of the various stages of the infection. Clinically, four different conditions may be found either singly or in combination: 1, simple hyperplasia; 2, hyperplasia with inflammation of the areolar tissue about the glands; 3, caseation or calcification; and, 4, the same conditions with involvement of the skin, with fistulous tracts. Anyone of these conditions may be limited to a very few glands or it may involve the whole chain, depending upon the resistance of the patient and the virulence of the infecting germ.

It is not impossible for spontaneous healing to take place at any stage, even when there is abscess or fistula, but such recoveries, especially in the later stages, are not the rule. Wolgemuth followed 46 cases not submitted to surgical treatment and of these only 24 per cent were permanently cured, while Osler states that more than three-fourths of all cases of acute tuberculous infection are derived from cheesy

Digitized by Google

lymph nodes. These figures indicate that spontaneous healing is, to say the least, uncertain, and that the diseased glands, when present, are a distinct menace to the possessor.

Surgical treatment consists either in complete extirpation or in incision and curettage. The latter form of treatment is more easily carried out, but is likely to involve repeated minor operations, and is open to the objection that it can never be certain that the infectious focus is entirely removed; in fact, it is reasonably certain that it cannot be, and positively certain that other infected but not broken-down glands are left and likely to go through the same course. It should not be considered as the operation of choice, but should be reserved for those cases of mixed infection in which all the tissues are so infiltrated with inflammatory products that a complete removal is impossible. Following it, it will frequently happen that fistulous tracts remain which refuse to heal, and which must be subjected to complete removal after the septic part of the process has subsided.

For all other operative cases complete expiration of all affected glands and of the fascia in which they lie is the proper procedure. The plan of simply removing the glands, even though all are taken, is objectionable because the lymphatic channels are still left; and they are infected with tubercle-bacilli, so that, unless an effort is to be made to remove all infected tissue, the incomplete method of incision and curettage might better be done.

Glands that have not caseated or broken-down or produced fistulæ should be subjected to the operation of complete extirpation, provided there is evident a beginning periadenitis, or a continuous though slow increase in the number or size of the glands involved, and all under the best available conditions of hygienic, climatic and medical treatment. Progression under these circumstances shows an inability on the part of the patient to cope with the disease, and indicates the time for surgical intervention. The beginning of periadenitis, in particular, marks an extension of the process into the fascia about the gland and outside the main

Digitized by Google

lymph channels. It gives warning of impending general infiltration of the tissues, with probable formation of abscesses and fistulæ, and shows that complete extirpation can not longer be delayed with safety.

It is not my purpose to describe the radical operation; suffice it to say that it requires an extensive incision and the sacrifice of part or all of the superficial branches of the cervical plexus. Sometimes even the internal jugular vein must be ligated and in part excised. These are matters of little moment as compared with the gravity of the disease. The spinal accessory nerve can easily be, and should be, preserved.

The operation statistics of the large clinics are fairly uniform. All indicate that cases of this kind are difficult to follow, as a majority of those treated are lost sight of. The results should be considerably better than indicated by the figures because cases that are cured have no occasion to return, while the ones with recurrences have.

Jordan,[4] in the "Handbuch der Deutschen Chirurgie," reports 73 per cent of permanent cures in 140 cases followed for six years, and of these, 90 cases showed periadenitis with adhesions and abscesses. One-half required secondary operation. If all the cases with abscess or fistula had been operated upon before the advent of these complications the results would have been considerably better. Fraenkel[5] had 71 per cent of cures after 3½ years. Wolgemuth[6] had 70 per cent of complete cures after total extirpation in children under ten years of age, and 64 per cent after incision and curettage. As stated above, he had only 24 per cent of cures and 37 per cent of improvements among 46 cases not operated upon.

Van Noorden[7] reports 27 per cent of cases having died of, or being afflicted with, pulmonary tuberculosis at the end of three years, showing 73 per cent of cures.

Trzebicky[8] (Krakau) reports 101, or 58 per cent, out of 175 cases, entirely well at the end of three years.

There is practically no mortality from operation. Patients with fever before operation often lose it soon after,

Digitized by Google

depending chiefly upon whether or not all disease foci have been removed. Jordan states that the effect upon an existing pulmonary tuberculosis is good, 16 out of 20 cases so afflicted later recovering, the improvement dating from the operation. Acute tuberculous infection following operation is rare though sporadic cases of meningitis have been reported.

No statistics, however, will have an accurate and definite value till the cases are classified as to condition at the time of operation, but it is reasonable to presume that the earlier operation is performed after its necessity becomes evident, the better the results will be. No cases ought to reach the stage of breaking down outside the gland capsule.

As a general proposition it would appear that when a known tuberculous focus has resisted general treatment, when it is so placed as to be subject to repeated irritations, as are the cervical glands from every inflammation of whatever character about the head or neck, and when such focus is readily accessible to surgical treatment, such treatment should not be withheld.

Of the two forms of operative measures noted, the statistics are in favor of complete extirpation as against incision and curettage. The chief objections to a radical operation are the length of the scar, the sacrifice of certain cutaneous nerves and the probability of the removal of some glands that nature might take care of. However, it will often happen that the scars of repeated incision are more disfiguring than that of a single operation when properly placed. The cutaneous nerve supply is of minor importance and is largely replaced in time, and nature forms new lymphatic, just as she does new blood channels. The advantages are an immediate and usually final removal of a dangerous focus; the withdrawal of a serious handicap to the patient's general improvement and the saving of much time, as well as an additional 8 to 10 lives out of every hundred.

The situation may be summarized as follows:

1. Prophylactic surgical measures consist in the removal of tonsils that are chronically enlarged or subject to frequent

Digitized by Google

inflammation, and the proper care of carious teeth, as also of any other irritative conditions about the head.

2. Cases exhibiting recrudescences after proper medicinal, hygienic and if possible, climatic treatment, should be treated surgically.

3. Cases with beginning periadenitis and all cases that have advanced beyond this stage should be treated surgically.

4. The operation of election is complete extirpation of all enlarged glands, together with the fascia in which they lie.

1. Osler.—Loomis-Thompson System of Medicine.
2. Archiv für Klinische Chirurgie. 1901.
3. Dowd.—Annals of Surgery. Vol. 29.
4. Handbuch der Deutschen Chirurgia.
5. Handbuch der Deutschen Chirurgie.
6. Handbuch der Deutschen Chirurgie.
7. Dowd.—Annals of Surgery. Vol. 29.
8. Archiv für Klinische Chirurgie. 1901.

DISCUSSION

DR. C. H. MAYO (Rochester): This is a subject in which I have always had great interest. For many years the line of treatment as laid out by Dr. Dennis has been the one which I have followed—to make complete extirpation of the glands. Let us look at the tonsil a few moments in its serious ability for infection. The same glands supplying the tonsils empty directly into the lymphatic system, so here we have a source by which germs can enter the blood-stream, and enter it directly. Every case of enlarged tonsil up to the age of puberty has always more or less adenoid tissue, and the tonsil troubles date from that condition of childhood. We are called to see a child under the age of eight with high temperature, but there is little to show on the second day but a red tonsil and a small amount of inflammation in this tonsil, but it is enough to produce a temperature of 105° Now, there has been enough work done in the removal of tonsils up to the time of the removal of tubercular cervical glands to show that there is a certain percentage, from two to as high as six, in which they could demonstrate that the tonsil tissue was tubercular. It is necessary, then, from the character of the structure of the tonsils, for the original infection to pass through the tonsils and into the lymphatics. You take an infectious disease of childhood, and in the majority of cases it will show first in the throat. Take osteomyelitis, and how frequently you get the history of the case as having started with sore throat, and we now look upon the tonsil as the source of many diseases.

Digitized by Google

No other place in the body is so liable to infection, outside of the intestinal wall. So the radical operation is a preventive of trouble. Every case of deafness in children, of earache, suppurating discharges from the ears, adenoid tissue, and enlarged tonsils, should be classed in the same line of work as the prevention of tuberculosis. Now, a word as to the reaction of the operation. It is an extensive operation, and yet we have operated in our hospital on 370 cases for extirpation of the cervical glands in tuberculosis alone, and without a death. We have only had one case of secondary hemorrhage. As far as the magnitude of the operation is concerned, it is as great an operation, if thoroughly performed, as is often done in surgical work. When you are all through with the operation on the glands, you have many nerves and the common carotid exposed. So we have combined in this all the difficulties in many operations in surgery. As far as recurrence is concerned, do the best we can, and there is nearly 10 per cent recurrence. Why is it? It is local. You have removed the lymphatic glands and fascia, but left a gland or two, may be, in the parotid region. That is where we get the recurrence. We cannot quite look upon tuberculosis as in the form of a malignant disease. We do not take too much chance of running into the facial nerves in the parotid gland unless there are positively enlarged nodes in the structure of this gland. I have one interesting case of purulent suppuration in the parotid, which was cured by the infection of erysipelas.

Dr. C. A. Kelsey (Minneapolis): I had hoped to hear from other surgeons on this subject. I am very glad to hear a discussion from so prominent a member of our association as the last speaker. I would be glad to hear from more, and for this reason: Several years ago at a meeting of this association held at Duluth our very celebrated surgeon from St. Paul read a most beautiful and poetical paper upon this same subject, in which he spoke of these glands as being the policemen of the system. I refer to the paper of Dr. Wheaton of St. Paul. If I understand the doctor correctly he no longer approved of this operation that is being so widely urged in this paper and discussion. So from that point of view I wish we might have had an opportunity to hear a more extended discussion of this subject. So far as the removal of large tonsils and adenoid growths is concerned, I certainly feel there is no mistake made in the very early removal of any of these growths that resist ordinary treatment. I beg leave to mention a trial I made, which has but little weight, from the fact that I have been unable to repeat it in many cases, but it was a trial in the special field of the static machine, throwing the positive current directly into the enlarged cervical glands. The case that impressed me most favorably was one that had been operated upon once, perhaps imperfectly. I am sure it was so because I performed the operation

Digitized by Google

myself, and I did not do it as thoroughly as it should have been done. I began this treatment, and repeated it with a gradual subsidence of the enlarged glands, until they finally entirely disappeared, and this occurred something like two years ago with no repetition of the trouble. Whether the strong electrical current destroyed the germs, or whether there was real value in it I do not know, but certainly the result in this case was very happy, and I have repeated it in a limited number of cases with like happy results. I suggest this as being worthy of trial. It is easily done, and the only drawback is a little loss of time over that in which an operation could be done.

Dr. W. A. Dennis (Essayist): I simply want to say a word in regard to Dr. Wheaton's idea concerning this operation. I think very few people do the complete operation. Dr. Wheaton, when I was with him, was not in the habit of taking out all the fascia, as well as the glands. His views were expressed on that part, and not on complete extirpation. Statistics for that reason are very unsatisfactory, as they do not state the nature of the operation. Some men are much more complete in their operations than others. I never saw elsewhere such a complete and fine dissection as that of Dr. Mayo, made at Rochester, and when that is universally done I think the statistics will be much better. His operation is better than any I have found in the literature on the subject.

Digitized by Google

THE INEBRIATE, A MEDICAL AND SOCIAL PROBLEM.

ARTHUR W. DUNNING, M. D.

St. Paul

Inebriety is, under proper conditions, amenable to treatment; and with reasonable hope of cure in a large per cent of cases. There are, however, few, if any, curable diseases which afford so unsatisfactory results from treatment as does inebriety. This is because under existing social and legal conditions the first essential to successful treatment is impossible to obtain. I refer to absolute and complete control of the individual for a sufficient length of time. Every practitioner of experience knows how utterly hopeless a task it is to try to build up, and restore to health and normal conduct, a man who has once formed an uncontrollable appetite for alcoholics. Delusions of strength, and an over confidence in that strength, are among the very symptoms of inebriety, and to induce such a man to place himself voluntarily under control for more than a few days beyond the period of actual intoxication is usually an impossibility.

The time required to bring about a cure, on the other hand, is from six to eighteen months. To secure this period of control legal measures are necessary for the reasons cited above. The state cares for its insane, its cripples, its criminals, and its defectives, but for the inebriate there is no law to control, and no place of detention, until such a time as criminal action lands him in the jail or the penitentiary, or until dementia supervenes and the hospital for the insane claims its own. A law then that will provide for the early control of all in-

Digitized by Google

ebriates, and for the detention, care, and maintenance of the indigent inebriate, will result in the cure of a large percentage of this class of unfortunate individuals,—and in doing so will accomplish a vast saving to the commonwealth in several ways. For instance, instead of dissipating his fortune it may be saved to himself and his family, thereby not alone securing their comfort and well-being, but in many instances saving the state itself the support of a pauper family. This will compensate for the expense of his care during the period of detention. Then through the prevention of criminal acts, a large percentage of which are attributable to alcoholism or its effects, a considerable saving to the state also is secured. Through procreation by alcoholic parents defective children are produced for the state to rear, to say nothing of the lesser effects upon offspring, which escape even proper recognition, but which are none the less potent in the degenerative tendency of the race. These results would be in a large measure avoided; and who can compute the ultimate saving in revenue to the state from such reduction of defectives? Finally, the state is accustomed to computing the loss by death of each able bodied citizens at $5,000. I am sure that no one will take issue with me when I aver that every man inebriated, if uncured, is worse than dead so far as his worth to the state is concerned. Therefore in the early cure, and saving from insanity, criminalism, pauperism, or ultimate dementia and death of these individuals, the state is greatly the gainer financially.

Taking all these various gains into consideration, then is it not a fair proposition that, looking into the future twenty-five or fifty years, it would be excellent policy from a business standpoint alone for the state to provide for the proper control and care of this class of unfortunates? That such provision is a duty which the state owes to society is apparent to every thinking person; and the great benefit to society which would result from such provision is unquestioned.

Digitized by Google

The state hospital for the insane is not the proper place for the care of this class; and it was undoubtedly in itself an act of justice to those institutions when some years ago the legislature repealed the law that provided for their care in those hospitals. That law should not, however, have been repealed without immediately enacting another providing for a special hospital for the inebriate. It was certainly a step backward on the part of our usually progressive commonwealth. The present situation in this respect is truly a deplorable one, for while a simple case of inebriety does occasionally find its way into the state hospital through commitment for insanity, it also not infrequently occurs that cases of true insanity, either alcoholic or otherwise, are debarred the benefits of hospital care. This is the result of an over zealous care on the part of the probate court of the state, and the difficulty which often occurs in determining whether the alcoholism is not merely a symptom of a pre-existent or developing insanity.

To summarize them:

Inebriety is, under proper conditions, amenable to treatment.

The condition essential to successful treatment is absolute control for a considerable time.

In the nature of things it is impossible to secure this control without legal measures; therefore a law is required that will provide for the early control of all inebriates, and the detention, care, and maintenance of indigent inebriates. This is not asking too much from the state, because both from a business and a sociological standpoint it will prove a paying investment.

On account of their ignorance as to the true nature of this malady and its remedy, neither the citizen, the taxpayer, nor the legislator is in a position to recognize this necessity as does the physician; therefore it becomes the duty of every physician to become a moulder of public opinion on this subject, and to urge everywhere the

Digitized by Google

duty which the state owes to the inebriate and to society in this respect.

DISCUSSION

DR. MARY MCCOY (Duluth) This is a question that touches the female portion of the community as much as it does the male. It has always seemed to me that when a hospital for the cure of the inebriate was advocated we were commencing at the wrong end of the question. The story has been told so often it has become hackneyed to you. What is the use of making indigent people drunkards, and then taxing the state? Why not do away with the cause of drunkenness? Why is it necessary to make ourselves a paternal institution? Why should we take care of the drunkard more than any other form of gluttony? Why not include the overeaters as well as the overdrinkers? Why not those who overdress as well as those who overdrink? Why not for the petty sins of mankind and womankind as well as gluttony?

DR. C. A. KELSEY (Minneapolis): I feel like apologizing for taking up so much time of the Association, but I regret to see no discussion on this subject. While the remarks of the last speaker were very forcible, there are many unfortunate conditions of society that seem to be yet unsolved. The habit of one who is addicted to drinking tea, which is as injurious as tobacco to the system, is a habit we cannot reach, and while overeating and overdressing are extremes we are not yet able to reach, still we should not lose sight of the importance of the subject so ably presented and discussed in the doctor's paper. According to the remarks of the last speaker, a subject which touches home, which touches the wife and the mother, a subject which seems to me is clearly beyond the evils of drinking tea and coffee and overeating, it is hardly right or fair, should be put in the same class. I say this, being as strongly opposed to the use of liquor and the evils of it as any person in this assembly. We cannot revolutionize the world in one step, and if we devote ourselves to an attempt to prevent the harm of drinking tea and strong coffee and the use of tobacco, and class that with our attempts to overcome the evil effects and license of strong drink, we spread ourselves out so thin that our influence is absolutely lost. The question of how best to manage the liquor problem is hardly the subject to be discussed here. I believe, however, the doctor in his paper has touched a vital point, because he has touched a point that has to do with posterity, with children yet unborn, and while I am a strong prohibitionist, I believe the greatest work in the line of temperance is with the boys and girls, and going one step further back and trying to remove the evil results from them in preventing the inebriate from running at large to do harm to the coming generation as well as to himself in the present.

Digitized by Google

I think it is a subject well worthy our consideration, a subject that ought not to be left without our careful thought and consideration. (Applause.)

DR. C. H. HUNTER (Minneapolis): I have about come to the conclusion that if a person is given to drink he should be advised to take the Keeley cure. It is possible that these establishments will not take the place of the hospital, and that a state hospital is necessary. But if the state will not take care of the matter we should look to those institutions for help. They are usually in the hands of medical men, and although they are not all men in whom we put the utmost confidence, still I do not know that they are prone to worse evils than the ordinary medical practitioner. We are certainly at a great disadvantage in any attempt to cure these people, or to do anything with them in our capacity as private practitioners. I can recall only a few people in my practice whom I have been able, by medication of one kind or another or by other influences, to cure of the drink habit. People begin in a social way and gradually increase the habit, and then they go on sprees once in a while, and by the time they reach middle life they have got to be taken care of either by some individual institution or by the state. I myself assisted and encouraged and sent a number to Rochester, and I was very much disappointed when that department of the state hospital was discontinued. I have never been able to learn why it was not continued. I presume it was, as the doctor suggests, from the opprobrium from being in an insane asylum. I think some influence should be exerted and some interest taken by some one to have a substitute provided for the insane hospital in those cases. A move of that sort, it seems to me, would be well worth the time and attention of some medical man who was in a position to do so. I think we all feel a helplessness in the presence of those cases. Some of them are extremely trying, and really we cannot consider them. If Dr. Dunning has any special information I am sure we would all be obliged to him to get the history of that movement at Rochester, and the full reason why it was discontinued, and why there was no substitute provided.

DR. L. F. FOOTE (Minneapolis): I know nothing about the Rochester experiment, but I do know something about the Illinois reason for refusing an inebriate an asylum in a state institution. There we formerly admitted only the criminal insane to our hospitals, and people who were sick, and whose friends were sick and had been committed to our state hospitals for the insane, objected to the criminal insane associating with friends who were not insane. The inebriate is purely and simply an inebriate. His is not a case of alcoholic insanity. You must draw a line between a case of alcoholic insanity and a case of inebriation, and it is necessarily a very

Digitized by Google

fine line to be drawn to know just who should be, and who should not be, admitted to the state hospital. I have long felt that the man who had an irresistible impulse to drink had a proper asylum in our state institution. I believe that is the view taken by most of the medical practitioners in this state, and it is in Illinois. I do not believe an inebriate has a place in that asylum. I do not believe he should be under the protection of the state, and maintained at the expense of the state. He drinks because he wants to. One of the speakers spoke about removing the producing causes, which was very good, but there is a line which should be drawn between that opinion and the opinion of the writer of the paper. I have long believed that the drunkard who drank whisky because he wanted to drink whisky, who wanted to drink because he wanted to go home and abuse his wife and baby, had only one legitimate place, and one only, and that is the stone pile. I believe if the law were enforced in this city and in every town in this state there would be less of this drinking going on. I think there would be fewer drunkards and drunkards' children. And therein lies the great danger to the future generation in making it weak and degenerate, and the children who are weak physically and mentally are sent to the asylum for us to take care of. If we will make an effort to enforce the laws we have to-day on our statute books we can do a great deal to stop this, and we will not have to establish hospitals to care for the common drunkards. (Applause.)

Dr. A. W. Dunning (Essayist): Perhaps I ought to say in answering the discussion that my own belief in regard to inebriety is that it is a disease, and I think the last speaker agrees with me in this respect. He says a drunkard transmits to his offspring a weakened tissue and such a constitution is more prone to disease. I think we agree on that point. It is a diseased condition to that extent, at least, that it exerts an hereditary influence upon following generations. My plea was that a hospital should be established at state expense for the care of the indigent inebriate, and I maintain that this is a business-like proposition, for the reasons mentioned in my paper. If these cases are taken early enough there is a distinct advantage to be gained by control. If they are taken as soon as they become addicted to the use of alcohol, before they have lost control of themselves, that is the time when treatment should begin, and that is the class to be cared for. I do not believe, with the last speaker, that "inebriety is always insanity," and that those cases have a place in the state hospital for the insane. The inebriate has no place in the hospital for the insane. He is a type and a class entirely apart from the insane, and should be cared for in an institution by himself, and on radically different lines. In answer to Dr. Hunter, I do not know that I can analyze the occurrence of a few years ago when a state law abolished the

Digitized by Google

inebriate department at Rochester. I believe it is as one of the speakers has stated, too many of our common drunkards were sent to the hospital to winter. The fundamental idea of that was wrong. They were not taken early enough. The institution was not specially prepared for them, and the conditions were not such as would apply to an institution especially for inebriates. There was another factor, a purely political one. The state officials became anxious to cut down expense, and a cry arose from all over the state that these common drunkards were allowed to go there and be maintained at the expense of the state when they should be pounding stone. I do not approve that idea, for I believe the inebriate is a sick man and should be treated as such. I do believe in private institutions such as Dr. Hunter suggests for those who are able to pay for their care, but even this is impossible until we have a law to get hold of and to control the inebriate. Until we have such a law that will restrain the individual liberty we cannot compel them to go to a state hospital, or any other institution. In answer to Dr. McCoy, society will have to undergo radical reconstruction before we can arrive at the ideal condition she describes. Theoretically she may be right, but practically I am sure her plan would not meet with success under existing social conditions.

Digitized by Google

THE DEMOCRACY OF EDUCATION IN MEDICINE: A PLEA FOR BROADENED POLICIES

GEORGE C. WELLNER, M. D.

Red Wing

There is found running through the more recent, if not the earlier, addresses of the presidents of the American Medical Association, along with a tone commendatory of work accomplished, a tone of another kind, a tone which deplores that the Association "has not won the influential position to which it should aspire, that it has been a struggle on our part to protect the public from a horde of uneducated and misguided persons, who under the guise of Christian Science, osteopathy and other schisms, insist on being permitted to take charge of human beings suffering from disease;" that our progress in securing medical legislation has been snail-like, and there are still other conditions these addresses deplore, all of like tenor. They briefly summarize the aims and needs of the profession, and their burden is the plea for its higher education and its better organization.

"It is," says a distinguished president of the Association, "a fact painful to acknowledge, that of the three so-called learned professions, the ministry, law, and medicine, ours is assigned the inferior position, and we who, day in and out, in every home in the land, are close to the personal friendship of our patients, respected and loved as individuals, are incapable of wielding by organization and discipline the powerful influence of a united profession aiming at a high and honorable purpose."

The import of these addresses is that the profession is incompetent for public influence. That there is a large basis of truth in this indictment goes without question,

Digitized by Google

and a grave problem is suggested by the increasing number of such utterances. What is the cause of this palpable weakness on the part of the profession? We know "there is no field for investment in the wide earth that will repay the individual, the public, and the state, better than is to be found in the most generous treatment of the medical profession." Why then is it that the individual, the public, and the state do not take a positive interest in medical science? The cause of this evident weakness of the profession is—accent the fact—that the rank and file stands for little more than clinicians. It is the heritage of ancestors.

The rank and file of the profession is exclusively preoccupied with the patient—with the functions of the higher nurse. Painstaking in diagnosis, resourceful in treatment, devoted to the patient, it is altogether bravely and finely true to its specific life vocation. But it is not wide-visioned: it is not alive to greater opportunities. The body of the profession is devoted to the individual, rather than to the community; to the one, rather than to the many. To win the influential position to which it should aspire, it must make medical advice a public, as well as a private matter. It must be ambitious to align itself in its educational and professional standing with the more advanced ideals of the age. In its unyielding devotion to clinical methods only, the profession misses connection with current events and misses actual accomplishment. "Medical education is advancing and changing; and to keep in line with modern progress, we must needs change our methods, and build a greater polyclinic, and that in the only practical manner under a government by the people; namely, by increasing the medical knowledge of that people." The voice of men eminent in the profession is now heard in many quarters in behalf of the democracy of education in medicine. Dr. John B. Murphy in a recent address delivered before the School of Domestic Arts and Sciences, Chicago, said:

"My acceptance of this invitation was not prompted

Digitized by Google

by the presumption that I could adequately fill this hour on the program. It was rather to gratify a long-felt desire of my own that the public should be informed, either through the public press or by public instruction, on the limitations of the science and the art of medicine,—a science which so deeply concerns the life-work, comfort, happiness, and mental achievements of every individual. It seems to me that there should be a public awakening and a heartfelt response to the idea outlined in this schedule of lectures; namely, that the public should become conversant with the so-called mysteries of our art. It seems to me that these mysteries and the basis of the isms can never be abolished until the medical profession takes into its confidence the general public, and instructs it so that it may be able to discern what is spurious and what is real."

Dr. Fernand Henrotin, in a recent work, gives many enlightening reasons for coming to the same conclusions. "The instruction of the laity by the medical profession," he says, "is the only rational cure for charlatanism. It is time the medical profession came out into the open and demonstrated to all the people the validity of its claim to be recognized as the sole authority in the matters of health. Many well informed people recognize the standing of medical men, simply because of their knowledge of the immense amount and high character of the work which is being done by the profession; but millions of men and women of reasonable intelligence and education, practically ignorant of this, intrust their most valuable possessions, life and health, to charlatans and chance, though they would not enter court without a lawyer or build a house without an architect. Almost all of this is due to ignorance of modern medicine, and much of this ignorance is due to the neglect of the physician in finding a way to bring knowledge to the door of the masses."

These are rational and common-sense views, shared by all that have studied the subject. Upon us rests the responsibility for the fact that the general public is un-

Digitized by Google

able to distinguish the real medical man from the spurious. The fact of the public's inability to make the distinction, justly discredits the attitude of the profession, and is proof, if any were needed, that it has chosen to deny its duty in making plain this difference. Thanks to the pernicious inactivity of the profession, its just demands, that the public health should be directed by it alone, have been denied—while the claims of spurious medicine have safely insured their didactic value with a legislator and a public whose education we have neglected.

It is time that the medical profession began to have some really solidifying and dynamic policy, calculated to teach the people how to distinguish the real physician from the parasite, and to "cherish and maintain him at the highest point of perfection." "Only the highest standards," says Prof. Jordan, "can purge the profession of parasites and quacks, only honest knowledge can save us from Christian Science and the almanac. Some day the boundary line between general and professional education will be broken down to the advantage of both." We have made startling advances in technical medicine, but, it must be allowed, we have not been educators. In these days of general education when intelligence is being rapidly diffused among all classes of people, there is no reason why the medical profession should not enter into a co-partnership with the people for the prevention and cure of disease. There is but one obstacle in the way; that is the enshrined clinical policy of the profession. Owing to ancestral ingrained habits or an ironical jocularity of fate, nothing, it seems, can for a moment give pause to the present day absorption in exclusively clinical subjects. In other words, the spirit of higher education is still individualistic.

Amid changed conditions, assembled by the sciences, numerous problems, medical, quasi-medical, sociologic, and economic, have shot up, and are pressing for settlement at the hands of the medical profession, aided by enlightened public opinion. But the profession has not

Digitized by Google

yet risen to the situation to settle them, and the awkward task has devolved upon an intelligent layman to step into the opening and grapple with these problems. Upon the profession rests the responsibility for having forced the teacher to assume functions which are properly those of the medical man. Upon the profession, furthermore, rests the responsibility for the osteopath, the physical culturist, and a horde of faddists, all of whom have intrenched themselves on medical territory. But there is still another count in the indictment: we are responsible for the presence of that peculiarly ungracious travesty of the true medical man, the Christian Scientist. Yet other hostile forces are at work occupying medical fields. The profession's danger should be its warning; it should wisely take a leaf from its experience.

Still another pearl of unwisdom is to allow lay or private initiative to set us the example in the settlement of questions overlapping medical lines, The milk commission, school pathology, the slum, the over crowded tenement, intemperance, the social evil, and what Huxley designates the "lethal pleasures of society," are some of the questions in the solution of which the profession ought advisedly to have taken the initiative and leadership. Our present attitude toward these problems discredits our best work; it appears too much like waiting for disease to develop, to ripen, as if it were a fruit, before we get interested. To achieve its greater destiny, the medical profession must acquire broadened policies. It must cease to build up with one hand, only to fall down with the other; it must cease to cultivate things only of immediate practical value,—to prescribe for conditions that simply meet the eye. As long as the professional heart is hardened to everything but the clinical case, broadened policies, as outlined, are not possible. "To labor for the alleviation of suffering and for the restoration of health," says John Allan Wyeth, "is a noble vocation, but to teach our fellows how to avoid disaster is a prouder privilege and a higher duty. We should be

Digitized by Google

teachers of men." Certainly, "every person is entitled to be instructed to the measure of his needs."

It is no easy task to comment sympathetically upon the profession's indefensible apathy toward its greater problems. Annually the president of the national organization deplores the impotence of the profession in finding its "true place in the body politic and its intrinsic importance as a factor in modern civilization." But the reason for this failure is not far to seek, as an examination of the program of this, the 36th meeting of the Minnesota State Medical Association, will show. Is it chance or is it the raillery of fate? Out of a total of fifty-one subjects on the program, forty-nine are of a clinical character. With one exception, there is before this annual meeting of a state medical association, not a single paper on the greater, extra-clinical, interests of the profession, a paper discussing its civil policy, and suggestive of the means of elevating the profession to a higher standard for increased public usefulness. All is conscientious loyalty to clinical traditions.

If the county and the state medical societies would devote but a small portion of their time to preparing and forwarding plans for the promotion of the profession's public interests, its demands would speedily be discounted by realization. Our attitude is too much that of a guild, thanks, after clinical traditions, to the modern "facility of paying admiring homage to mere intellectual adroitness in business adventures." It is one of the false standards of our time. At any rate, we have not as profoundly influenced the life of the nation as we should have done. The profession has given too little evidence of genuine sympathy for the people. As a body it has no attitude, at least no known attitude, on the more comprehensive health problems of the age.

While we have an attitude on the subject of treatment of the sick school child which is brought to us, we have no attitude on the greater problem of the education of the race and the resulting school pathology. It is probably not far from the truth, as charged by one ob-

Digitized by Google

server, that apparently nine out of ten family physicians wait until a child breaks down or develops disease before interfering. The teacher has seen the logic of this position, and has stepped into the opening in his imperfect way, to cure the mischief before it arrives. It is certain that our sense of self-respect, if not our interests, will not much longer permit us to sit in our offices, waiting for some harm, made operative by our inaction, to send us the little patient.

We have in like manner an attitude on the treatment of our syphilitic patients, but we have no attitude on the treatment of the greater problem of the social evil and the conditions bordering upon it, though we know that syphilis has for a long time been on the increase, that it is one of the most productive causes of degeneration, and that carnality with barely covering to hide downright lewdness is everywhere apparent. In the present general corruption, devotion to sensuality, the beastliness of open impurity, and every shameless form of iniquity, and absolute indifference to all woe save its own, surely, our profession has a duty to perform besides that of mere repair of the physical evils entailed by these causes. We have too long, for our own good, been the beneficiaries of the public's ignorance. Let us now tell the people the truth. The truth can not be contrary to the real interests of humanity. The eternal years of God are hers!

Another problem which we have not fertilized is that of food requirements. The people are still without a physiological rudder to steer through the enlarging sea of foods. It is no blasphemy to ask, what has the profession done for the people's knowledge of food? The answer is, nothing. We have done no more for the growth, training, food, and clothing of the child, and but little to abate the crimes committed against children in the matter of food. It is a biting truth that there is nothing like uniformity among mothers in the feeding and care-taking of children, and the consequent ex-

Digitized by Google

cessive infant mortality is a reproach to the profession. "We often wonder at the ignorance of the general public in regard to matters of health, but our pity never extends to the point of affording them reasonable instruction."

Another problem concerning which the medical profession does not appear to realize its position and responsibility is that of intemperance, most appalling in great cities. In the year past this nation drank 19.48 gallons of alcoholic stimulants per capita, nearly doubling the quantity in twenty years. The people of the United States spend annually the enormous sum of $1,074,000,000 for malt and alcoholic liquors. These figures challenge the attention of the medical profession. But astonishing as these figures are, they are as nothing compared with the extent of pathological territory covered by alcoholism. The medical profession has done nothing to stem the strong current of popular favor for liquor as a beverage. In fact, we have never gotten beyond the therapeutic consideration of alcohol, alcohol as a food and stimulant. With drunkenness and its satellites, poverty and misery, everywhere in evidence, to urge the claims of alcohol as a food, has no more force or dignity than a mere quibble. It may be sublime to the experimenter, but it is ridiculous to the rest of the world. Men are not going to answer the painful earth by pointing to this affront to civilization as a food. One need not be a prohibitionist to perceive that in this problem we have not shown the highest level of life-comprehension. No viler evil than the drink habit calls itself custom. Civilization in this problem of intemperance has progressed from the ape to the devil. The medical profession has already done and said more than is good for its intersets in palliation of alcohol, and has reaped the consequences in popular distrust.

Let these few examples, taken from the many, suffice to illustrate the sad picture of professional limitations. We have shown a rare devotion to clinical medi-

Digitized by Google

cine, something of the crusader's fervor; now let us show something of the same fervor, perchance in a broader, if not a holier, cause, the medical instruction of the people. This democracy of education in medicine is the only route to the complete sanitation of the world. With the diffusion of this information, the medical profession will enter upon that broader education, higher intelligence, and greater destiny foreshadowed by its leaders.

DISCUSSION

DR. C. F. DIGHT (Minneapolis): The only hope of the world is in education, and it must be an education of all the people, as well as of the children. This is being accomplished in some of our eastern cities by simply throwing open the doors of public school buildings for free public lectures, and a former superintendent of the public schools of New York wrote me about a year ago that there had been an attendance of about 1,000,000 people at these lectures, which dealt with practical matters—sanitation, sociology, biology, history, etc. I should like to see this Association put itself on record as favoring such a use of the public school buildings of our large cities throughout the state, where public lectures could be given, and the people instructed along various practical lines. It would not cost very much, and the buildings might as well be put to that use when school is not in session. The chief expense would be to heat and light them for a few hours. In many of our towns we can find local talent, at but little cost, to render this useful service.

DR. MARY MCCOY (Duluth): I wish to say a word as to the standing of the medical profession as compared with those of the law and the ministry. If you ask a lawyer whether justice is being done I think he will tell you it is not. Not only that, but it has come to be so bad that the great journals and magazines are devoting large space to the discussion of these crimes and shortcomings. The ministers will tell you the world is worse than ever. On the other hand, the medical profession has eradicated many diseases, such as yellow fever, smallpox, etc., and has made steady advancement along other lines, so I think we compare very favorably with the legal and the ministerial professions. I think we have cause to congratulate ourselves upon that fact, and no physician need feel that we occupy an inferior position among the professions.

Digitized by Google

GANGRENE OF THE THROAT

J. A. WATSON, M. D.

Minneapolis

Gangrene of the throat cannot be considered as in any sense a disease specifically distinct from other septic manifestations of the same region. It is indeed but the most severe and violent, while fortunately the most rare, of a series of septic manifestations characterized above everything by their violence and severity. The other members of the series, following Watson Williams' classification, are (a) Superficial septic inflammation, e. g., so-called hospital sore-throat; (b) Membranous septic inflammation, e. g., some cases of pseudodiphtheria, scarlatinal diphtheria, etc.; (c) Edematous inflammation, e. g., acute edematous tonsillitis, pharyngitis, epiglottiditis, arytenoiditis, cellulitis of the tissues of the neck, etc.; (d) Phlegmonous or suppurative cellulitis.

The condition under discussion occupies the last place in the series. Felix Simon, as long ago as 1895, endeavored to establish the pathological identity of these various conditions, and to show that they were but varying degrees of virulency, manifested under varying conditions by one and the same disease. Certain it is indeed that so far no etiological distinction has been established. The trend of bacteriological investigation on the contrary seems rather in the opposite direction, since it has now been proven that the same microörganism may produce pathological conditions anatomically distinct in different cases, and, further, that in some instances anatomically indentical lesions may be of variant bacteriological origin.

It is the purpose of this paper, however, to discuss the condition under consideration from a clinical, rather than

Digitized by Google

from a pathological standpoint, and with this object in view it will make for definity and clearness of classification to distinctly except from our category all those superficial necrotic processes which are a comparatively common and, as it were, an accidental accompaniment of various inflammatory throat affections, but more particularly of diphtheritic conditions. We include, in short, only those processes in which the gangrenous tendency of the inflammation is its most striking and characteristic feature, a feature becoming manifest at a very early stage in the course of the disease and at once throwing into comparative insignificance all accompanying local phenomena. The writer is prompted to make this distinction by the result of correspondence on the subject with certain eminent laryngologists who repeatedly used such expressions as "necrotic ulceration" in reply to his queries, a term which comes very far short of describing the condition he has in mind.

This most virulent septic manifestation then, gangrene of the throat, in the properly limited sense defined above, attacks quite indiscriminately the young and the aged, the robust and the debilitated. It may occur quite independently of any pre-existing disease, or in the course of septicemia, rheumatism, tuberculosis, syphilis, and diabetes. It is occasionally the result of severe traumatism, such as that produced by corrosive poisons. There are probably other predisposing conditions, but the cases reported are as yet too few in number to serve as a basis for very wide generalizations. The clinical history of the disease can perhaps be best described by the presentation of the records of a few typical cases, two of which, occurring in the practice of the writer, have not been hitherto reported.

CASE I. J. N., male, aged 32. This man came to my office June 20, 1901, complaining of loss of voice and pain in the throat, particularly on swallowing. He had been in this condition for about two months, and was becoming steadily worse. His throat had been "cauterized" about two weeks before by a physician in the country, since when the symptoms appeared to be greatly aggravated.

Digitized by Google

The patient was considerably emaciated, pale and feeble in appearance, and suffering from evident difficulty in breathing. His temperature was 99.5°, respiration 30, pulse 100. The nasal passages and pharynx were nearly normal, presenting only slight hyperemia. The condition of the larynx was, however, deplorable. It was almost uniformly red and swollen, with ulcerations on the false cords and arytenoids. The epiglottis had entirely disappeared, leaving in its place a band-shaped ulcer. It was impossible, from the gross appearances alone, to diagnose positively between tuberculosis and syphilis. He grew rapidly worse and was admitted to hospital June 25. Infiltration and ulceration of the lower part of the posterior pharyngeal wall soon became manifest. His temperature ranged from 100° to 103°, pulse 100 to 120. There was a trace of albumen in the urine and many hyaline and granular casts. The sputum revealed large numbers of streptococci, but several examinations failed to reveal the presence of tubercle bacilli.

About July 18, the soft palate and pillars of the fauces became dusky red and swollen. Greenish black spots soon appeared in the former, rapidly spreading and coalescing. The odor from the breath was intolerable. On the 21st the fauces were completely gangrenous. This gangrene was not merely a superficial necrosis. It was evident that the whole depth of the soft palate and pillars was involved. "Sloughing ulceration," "phagedenic ulceration," "necrotic ulceration," and all such terms alike fail to describe the condition as completely as they would fail to describe a case of senile gangrene of an extremity. On July 22 the patient died with profound septicemic symptoms.

AUTOPSY.—In addition to the gangrenous condition described the autopsy revealed tubercular ulceration of the larynx and pharynx, a small tubercular cavity in the apex of the left lung, miliary tuberculosis of both lungs, and atheroma of the aorta. Microscopic sections from the tracheal and pharyngeal walls made evident extreme tubercular infiltration of those regions

CASE 2.—In November, 1901, I was called in consulta-

Digitized by Google

tion to see a young lady who had been suffering for some weeks from acute articular rheumatism accompanied by a purpuric rash. During the previous few days she had been complaining of an extremely sore throat. On examination I found well marked necrotic areas of a dirty gray color on both upper and lower gums, particularly in the neighborhood of the incisor teeth. The throat was uniformly dark red and swollen. The entire right tonsil and a portion of the left tonsil were converted into black gangrenous masses. The breath was terribly foul. Under antirheumatic and supporting constitutional treatment and antiseptic treatment locally she gradually recovered, the gangrenous organs separating entire. There was no resulting cicatricial deformity, as the gangrenous process did not spread into the soft palate or faucial pillars.

A case reported by Stein occurred in a child of twelve years. There had been fever and dyspnea for six months. Physical examination showed "heart disease." Soon after being first seen there developed swelling of the glands of the neck, dysphagia, and extreme fetor of the breath. The palate, uvula, and left tonsil became a "black, ichorous mass having an awful fetor." The autopsy showed gangrenous destruction of the pharynx and nasopharynx, and hydrops pericardii. (Monatsschrift für Ohrenheilkunde, Nov. 5, 1894).

In a case under the care of Mr. Luther Holden the patient suffered from acute septic gangrene of the thumb. For three days after amputation of the arm he progressed nicely. The throat now began to swell enormously and became covered with black gangrenous patches. The condition was evidently due to the same cause as the antecendent gangrene of the thumb. (Lancet, April 27, 1895).

Howe reported a case occurring in a man of twenty-six. The symptoms were at first those of impending peritonsillar abscess. The throat was of a purplish color. The entire tonsillar region of the left side was so swollen as to form a large tumor, presenting two necrosed areas of the peculiar greenish hue of gangrenous tissue. The entire gangrenous

Digitized by Google

tonsil, forming a mass about the size of a hickory nut, was removed by forceps without effort. The gangrenous process, however, continued to spread until it was checked eventually by application of pure nitric acid. The patient recovered rapidly, some cicatricial deformity remaining. This patient was a strong, healthy man, who had never used either alcohol or tobacco, and who was free from any specific taint.

Richardson reported a case in a healthy man of forty-five, who was, however, "addicted to excesses." He had the characteristic symptoms of quinsy, subsiding, however, after a discharge of pus from the nose and mouth. The septicemic symptoms, nevertheless, became more and more marked, and the right tonsil with the anterior and posterior pillars of the same side became completely gangrenous, there being a distinct line of demarcation. The condition resulted in death. (Laryngoscope, November, 1903).

A consideration of these few cases alone, chosen from the scanty literature of the subject, ought, from the standpoint of the clinician, to clearly differentiate this condition from all other septic or infectious conditions of the throat. While it may be engrafted upon, or even be the direct result of a pyogenic process, pus formation forms no essential part of its history. While a croupous exudate may, as in more than one reported case, mask, in the early stages at least, the true character of the disease and perhaps lead to the institution of anti-diphtheritic treatment, this, too, is but an accidental accompaniment of the far more significant necrotic process. While here, as elsewhere, the gangrenous process involves loss of tissue, it can yet not fitly be described as an ulcerative process, since the latter term is properly restricted to destruction of superficial tissues alone. While lastly, there may be enormous inflammatory swelling and edematous infiltration of the surrounding tissues, they play but a part subsidiary to the all essential necrosis. It is indeed manifest to the careful observer that the cases under discussion form a class which, while from the standpoint of the pathologist differing perhaps only in degree from certain other septic affections of the throat, should yet be separated

Digitized by Google

from the latter clinically by a very distinct line of demarcation, inasmuch as the tendency towards gangrenous destruction of tissue is not only their most marked and characteristic feature, but is usually manifest very early in the history of the disease. Since we are unable to separate this ultimate and destructive manifestation of the inflammatory process, etiologically or in any specific sense, from other less violent septic conditions, we are obliged to ascribe it to (a) some peculiar potency of the bacterial toxines, derived perhaps from the conditions of their elaboration; (b) extraordinary susceptibility, local or constitutional, a susceptibility, however, not necessarily dependent on lowered vitality; (c) deprivation of nutriment to an extent not ordinarily observed, and resulting perhaps from invasion of important vessels with consequent thrombosis; or (d) various combinations of these factors.

Digitized by Google

CAUSES AND TREATMENT OF ACUTE ARTICULAR RHEUMATISM

E. A. HENSEL, M. D.

Alexandria

DEFINITION

Acute rheumatism of the joints, or rheumatic fever, is a febrile disease, liable to complicating inflammations of the pericardium and of other visceral serous membranes, and to recurrences. It is probably of parasitic origin.

This is F. Levison's definition. Anders' definition adds to the above, that it is endemic in many localities and at times epidemic, practically unknown in some localities, especially Europe, e. g., England, Belgium, and Russia. Other authors do not add to these definitions anything of importance.

ETIOLOGY

Predisposing causes are—

1. Infective lesions (septic wounds, attacks of angina).

2. Seasons.—February, March, and April are the months in which it is especially frequent, although it may occur in midsummer.

3. Catching cold predisposes to an attack.

4. Climate.—Authorities are not agreed as to whether climate has a great deal of influence upon the disease. It has been the general impression among medical men and also the laity that cold and wet help to bring on the disease. According to Anders, England, which is noted for its fogs and rains and chilly weather, has no inflammatory rheumatism to speak of. A. Newsholme discusses the epidemiology of rheumatic fever, and after reviewing the Scandinavian records in particular he decides that it is an urban disease

Digitized by Google

rather than rural, and that it is not favored by dampness, but that a heavy annual rainfall is usually associated with a low amount of rheumatic fever, and a small rainfall with an excessive amount. He thinks that it is essentially a soil disease due to a saprophytic soil organism which is drowned out in wet years, multiplies rapidly in dry years, and is transmitted to the human recipient by unknown means. This view is unique and I believe contrary to the experience of most clinicians. The disease is more prevalent in the temperate than in the torrid or arctic zones. My experience has been that it occurs in Minnesota at any time of the year, and in dry cold and wet cold alike frequently.

5. Occupations which expose to prolonged cold, or severe changes of temperature predispose to the disease, e. g., coachmen, laborers, sailors, and servant girls are more subject.

6. Age.—Primary attacks are usually found between the ages of 15 to 35 years. Sucklings rarely suffer.

7. Men are more liable to contract the disease, perhaps because they are more usually addicted to the use of alcohol and tobacco, and because as bread-winners they are more exposed to inclement weather.

8. Hereditary influence seems to predispose.

9. Conditions of illhealth, such as hepatic or gastric disturbances, make one more prone to contract the disease.

10. Chronic endocarditis predisposes.

11. Choreic children often develop rheumatism.

12. A previous attack predisposes.

13. Porter is in doubt about the uric acid theory, but points to the fact that an excessive amount of food taken in with a corresponding lack of oxygenation predisposes to the disease. This has been my experience, heavy meat eaters being particularly prone to the disease. The uric acid and lactic acid theory find but few supporters now.

Owing to the analogy existing between the course of an attack of rheumatic arthritis and that of a recognized infectious fever, it is now generally believed that the former dis-

Digitized by Google

ease is due to microbic invasion. There are four theories, all of which point to bacterial infection.

1. The theory of modified pyemia.

The view of Gustav Singer, first published in 1898, is that it is not a distinct disease, but due to streptococcal or staphylococcal infection, in other words a modified pyemia. He states that the search for a specific germ is futile, that the diplococcus described by Wasserman, Meyer, Poynton, and Payne and others is nothing but the streptococcus pyogenes. He further maintains that polyarthritis is only an occasional occurrence in rheumatism and that rheumatism can not be produced in lower animals. He claims, further, that because of the peculiarity of the circulation of the joints they may be affected by a degree of virulence less than that required to produce a pyemia, and that this attenuation is brought about by passage through the adenoid tissues of the throat.

2. Achalme's specific germ theory.

In Achalme's papers, published in 1891 and 1895, he claims that a large sized bacillus with variable morphological characteristics is constantly present and is the specific cause of rheumatic fever. He states that he produced the disease in rabbits by inoculation with this germ. Poynton and Paine failed to confirm the result of Achalme; but found a bacillus similar to the one described by him which they found to be the lactic acid bacillus. Achalme's view is not entertained by any of the authorities.

3. The theory of varied infection.

The third view is that rheumatic fever is not due to any particular organism but is a particular reaction to varied infections. This is hardly tenable, for then we would have to call rheumatism arthritis, for the gonococcus, pneumococcus, and tubercle-bacillus may all produce an arthritis, but we would not call this rheumatism.

4. The fourth view.

In 1899 Poynton and Paine tried to confirm Achalme's findings, but did not succeed. In eight cases of inflammatory rheumatism, however, they obtained a diplococcus which

Digitized by Google

grew in streptococcic chains. These microbes grew best in a liquid medium of milk and bouillon rendered slightly acid with lactic acid. These organisms were isolated in pure cultures three times from the blood of patients who, during life, were suffering from acute rheumatic pericarditis; also from the patients' throats and from the pericardial fluid. After death they were isolated from fragments of granulation from the valves of the heart of human beings, and also from the joint exudation, heart-blood, urine from the bladder, and cerebrospinal fluid of inoculated rabbits.

These organisms when inoculated into rabbits produce polyarthritis, bursitis, and tendosynovitis, multiple non-suppurative valvulitis and pericarditis, plastic pleurisy, and pneumonia. Multiple joint swellings wasting and pyrexia resembling rheumatism in the human are also produced. Passed from animal to animal similar symptoms are produced.

In September, 1901, they reviewed the bacteriology of this disease and brought the number of cases up to 18.

The organism described by Poynton and Paine is regarded as the same as that found previously by Triboulet in 1898 and Apert and Triboulet in the same year and Wasserman and Malkoff in 1899.

During the current year Beaton, Walker and Ryffel have published confirming reports. They agree fully that a micrococcus is constantly associated with rheumatic lesions. They used in their study 15 cases. This together with the 18 cases of Poynton and Paine makes 33 cases in which this organism has been found. This is a minute coccus arranged in pairs and short chains. It cannot yet be distinguished from other forms of streptococcus. Some regard it is a streptococcus, others as a streptococcus so altered by its sojourn in the body as to acquire a quasispecific character, and others—such as Leyden, Litten, Meyer, Poynton, and Paine—as a specific organism. Later work reported by Walker and Ryffel lead them to the belief that this coccus which they name micrococcus rheumaticus is the

Digitized by Google

specific organism of acute rheumatic arthritis and the allied conditions usually associated with it.

All this would be proof conclusive that the coccus in question is the true cause of the disease, were it not for the negative result obtained in 270 cases observed in Osler's service, and reported by McCrae. As it is we must await further reports along the same lines.

TREATMENT

Hygienic.—The sick room should be kept at 65 to 70 degrees F. Draughts should be avoided. The patients should be lightly dressed in flannels and covered with a sheet of the same material.

The diet should consist of milk, buttermilk, farinaceous matter, egg-white, and good fruit. After defervescence ordinary diet should be gradually resumed.

Stimulants may be employed if needed.

Internal Therapeutics.—Salicylic acid and its derivatives. These are the best drugs we possess for this disease. There is some difference of opinion as to which preparation should be used. It seems that sodium salicylate is used more than the ammonium salt, salicylic acid, salicin, salophen, or methyl salicylate. It should be given in ten grain doses every two hours until the pain and other local features have largely disappeared; then it should be given at longer intervals. If exacerbations occur resume large doses. It is claimed that this drug has no curative effect on heart complications after they are once established. It should not be given in cases of weak heart without appropriate heart stimulants being given in conjunction. Strumpell gives one to one and a half drams of sodium salicylate at one dose at beginning of disease.

Antipyrine.—Usually considered unsafe, although quite effectual. At von Leyden's clinic this drug is given in daily doses, 60 to 90 grs., for three or four days or until painful symptoms subside. No bad results have followed.

The alkaline treatment is only mentioned because it has so long been used. It is now occasionally used when the

Digitized by Google

salicylates cannot be borne. Anders gives it in conjunction with the salicylates as a routine treatment.

Potassium Iodide.—Good after acute stage subsides, and disease lingers.

Colchicum.—Good when potassium iodide is indicated.

Lactophenin.—Roth uses it, but it is not as good as the salicylates.

Aspirin, or acetyl salicylic acid.—Friedeberg recommends it because of its pleasant taste and because it has no untoward effects.

Antistreptococcic serum.—Stengel has used it with marked improvement in three cases of protracted recurring rheumatism.

Syr. of iodid of iron.—Used with success in a limited number of cases.

For hyperpyrexia use cold baths.

Cardiac complications should be treated symptomatically. Endocarditis, pericarditis, and endopericarditis rarely require special remedies. A copious pericardial effusion calls for paracentesis.

Local measures.—In mild cases wrap joints in cotton batting or flannel. For severe pain fomentations as hot as can be borne or hot cloths lightly wrung out of Fuller's lotion of sodium carbonate, laudanum, glycerin, and water.

The following ointment is of service:

℞

Acid salicyl.
Lanolin.
Ol. terebinthinæ.
Adipis

aa.....3iii

M

Rub freely over affected joints and follow by wrapping in cotton. I substitute for the turpentine menthol, a dram to the ounce, and for lanolin ung. hydrargyri ammoniati. This combination seems to work better than the other with me.

Methyl salicylate, applied drop by drop on skin, and the joint then wrapped in gutta-percha tissue and a flannel ban-

Digitized by Google

dage applied is very effectual. Cold compress or ice-bag is used by the Germans especially.

Keep joints at rest by a padded splint or plaster-of-Paris cast. Blisters applied near the joints by the thermocautery, or heated glass rods lightly applied are useful.

Convalescence.—The patient should stay in bed a week after the temperature is gone, and pain has disappeared. After he goes into the open air he should avoid cold and wet.

Iron should be given until the blood is normal.

For the stiffness and swelling massage and applications of hot water or warm baths should be employed.

My experience has been that the less a rheumatic patient is bathed the sooner he will recover.

DISCUSSION

DR. MARY TOWERS (Minneapolis): I have been very much interested in Dr. Hensel's excellent paper, for if there is one disease that baffles the skill of the general practitioner more than another, it is acute articular rheumatism. This is doubtless due to its uncertain etiology, some authorities advocating a hereditary predisposition on the ground that acute articular rheumatism so frequently occurs in the children of parents afflicted with muscular rheumatism and in whom, later in life, a degenerative process in the aorta has been discovered. Other authorities are of the opinion that it is the result of a toxemia attributed to an excess of uric or lactic acid, while still others believe the disease to be of bacterial origin, as the doctor has stated in his paper. All of these theories, however, lack confirmation. When making a few clinical observations at Johns Hopkins hospital, I asked Dr. Osler his opinion of the origin of acute articular rheumatism, and he said that he believed it a disease of bacterial origin, but added, "Science has thus far been unable to discover or isolate the particular bacterium." Climate is not a very positive factor, for the disease attacks its victims in nearly all portions of the United States. Not long ago I was surprised to find a person in a southern climate who had been greatly afflicted with articular rheumatism. He came north to visit relatives before going to Mt. Clemens, Mich., for treatment. After living a short time in Minnesota, he was freed from the disease, and has not been troubled since. Now, all general practitioners know that many people in Minnesota are afflicted with this disease; in fact, it is second only in frequency to the diseases of the air passages. Treatment is highly problematical. Hygenic measures are slow, and drug reatment very often ineffectual or harmful. For

Digitized by Google

local treatment I have often used oleum gaultheriæ mixed with lanolin, and then applied the hot pack. This brings temporary relief at least. Some physicians advocate the use of the Weir splint, thus immobilizing the joint, as the doctor suggests in his paper by the use of the plaster cast. Dr. Gillette, the St. Paul orthopedist, recently treated a joint with hot bichloride solution, beginning with 1 part to 10,000, gradually increasing the strength. A hot pack was sometimes applied anteriorly and a cold one posteriorly, thus aiding absorption and stimulation in the joint at the same time. With any known treatment articular rheumatism seems to be a self-limiting disease. I have had fair success with drugs, but I employ every possible hygienic measure in preference. I often think of Loomis' quotation of Gerrard, when asked for internal treatment for this disease, which was, "Colored water is as good as anything." Practitioners, of course, do not like to believe this, and certainly cannot practice it. The salicylates counteract somewhat the hyperacidity of the fluids, and therefore alleviate the symptoms, but relapses often occur, and in the treatment of children, they are almost useless, as they disturb the stomach and nervous system when given in large doses, and the result is uncertain when not thus administered. Dr. Winter had an excellent article on the "Treatment of Acute Articular Rheumatism" in children in the Medical Record for January. He advocates treating the acute symptoms as they arise, and after a marked alleviation of these, he puts the patient on a milk diet exclusively, believing milk to possess curative properties for this disease. It is difficult to keep a child or an adult on a strictly milk diet long enough to give this treatment a trial, especially in private practice.

Dr. F. M. Archibald (Atwater): In regard to treatment, I believe if salicylate of soda is given early enough, although it causes slight toxic symptoms and probably nausea, the disease rapidly diminishes. I have never seen a case where a patient's ears were ringing with salicylate of soda where she had much pain with rheumatism. I have been much interested in the form of treatment which has been suggested by Bouchard of Paris. He injects small doses of salicylate of soda directly into the joint, and he finds it gives almost immediate relief. If he only injects in one joint the other is not relieved. The other joints may be affected after that. In regard to the streptococcus, I had one experience last year in a case of acute articular rheumatism following erysipelas, and I commenced using antistreptococcic serum. I gave this three days, accompanied by very small doses of salicylate of soda. Then I discontinued the antistreptococcic serum, but continued the salicylate of soda, and the symptoms recurred in a measure, but on resuming the antistreptococcic serum the disease soon disappeared, and the patient recovered.

Digitized by Google

DR. E. J. ABBOTT (St. Paul): In my personal experience with the use of salicylate of soda in the treatment of rheumatism, I do not ordinarily get anything like the good results that I did twenty years ago when this treatment of rheumatism was first introduced. In those days with the use of moderate doses (5 to 8 grains every two hours), we not only obtained the beneficial effects promptly, but the toxic effects were manifested as well,—deafness, buzzing of the ears and nausea; but now it is not at all unusual, even when we give the drug in larger doses than we use to we get no effects at all. I have given the salicylate of soda within the past two years in doses as high as 15 or 20 grains every hour, and kept it up for two or three days, with absolutely no effect, either therapeutic or toxic. The trouble is that the great majority of the preparations of salicylates are of the synthetic variety and have nothing like either the therapeutic or the toxic effects we get from the salicylate made from wintergreen. If we can get the genuine wintergreen or willow salicylate, we will get as good results in the treatment of rheumatism as we used to get years ago. In my own practice I have been in the habit for some time of using salicylate of strontium. We get just as good an effect so far as the salicylate is concerned, and almost none of the disturbances of the stomach, appetite and digestion such as follow the soda preparation given in the same doses. So far as local treatment is concerned I get quicker and more thorough relief from cold applications and ice-packs than by any other means, and this not only in inflammation which is rheumatic but in that due to other causes as well.

DR. SOREN P. REES (Minneapolis): Inasmuch as the cause of rheumatism is not yet definitely known, and inasmuch as the treatment is unsatisfactory, it seems to me we should work with more care in trying to prevent it, especially on account of the serious complications to the heart, involving its muscle and the surrounding and lining membranes. We are often absolutely helpless in checking or modifying those complications, and I think the medical profession should look with considerable gravity upon the slightest symptom or complaint such as sore throat, which experience has taught us may be a forerunner of rheumatism, whether in a child or an elderly person. Such a condition should not be passed over lightly. Even if there be no temperature the person should be put to bed, and carefully nursed and watched for some time before he returns to his ordinary occupation. I believe our clinical observation will substantiate that thought.

DR. D. O. THOMAS (Minneapolis): In the treatment of rheumatic fever in the acute stage we all agree. We give the salicylates in some form or other, unless they cause albuminuria, which they sometimes do. While we give them we should not neglect to examine

Digitized by Google

the urine often. In some cases the kidneys are involved, and from the use of the drugs we still find an increase of albumen in the urine, and we shall be obliged to discontinue the use of the salicylates. In some cases the joints and fasciæ are involved, but the disease is not localized or confined to the joints. In those cases I do not think we succeed with the salycilate of soda in every instance. We find better success with some other treatment. Then there are other cases of rheumatism that trouble us, and those are not the simple acute cases, but the post-rheumatic cases where we have stiffness tending to end in anchylosis. I think those trouble us more, as a rule, than the acute stage of rheumatism, and in my own experience in these post-rheumatic cases I have found that salophen gives better results than salicylic acid. In giving it, I give it in large doses, 20 to 30 grains, three times a day. The druggists often call me up, and ask if I have not made a mistake in prescribing, but my own experience with the drug encourages me to give it in large doses, and in cases where the fasciæ and ligaments are involved I think it gives results where the salicylate of soda fails. In these rheumatic cases where there is much pain, and a condition approaching ankylosis, I think it is useless to give salicylate of soda or anything else, unless we anesthetize the patient first, and produce passive motion of the limb, and then follow that with salicylates, and keep them up for weeks afterward. With this I believe the use of heat as a local application is good, heating to 250 degrees, or something of that kind.

Dr. L. F. Schmauss (Mankato): I listened with great interest to Dr. Hensel's paper, especially to that portion relating to the etiology of the disease. In speaking of the etiology of rheumatism, I believe the exciting cause is found to a great extent in the digestive tract. I have had a number of cases in which I resorted to gastro-intestinal treatment, and in nearly every case recurrences were prevented. There is one point I wish to touch upon, and that is the condition of the heart in acute rheumatism. It is generally claimed and said that the heart complication is due to a great extent to the use of the salicylates or alkalies. I do not believe that. In the first place I have never found any reason given why it is due to the salicylates; it is only an assumption. In the second place, we have had the condition before we used these drugs. Thirdly, if we take pains to examine our cases (at the first visit) we frequently find an endocarditis also present, whether the salicylates or no medicine has been given. So I think this statement does a great deal of harm in preventing the prescribing of adequate doses of the salicylates in the treatment of this disease. I believe endocarditis can be prevented to a great extent by resorting to thorough treatment; the disease can be controlled in a few days if we give good doses of sod. salicylate at the beginning, and not spread it out for from

Digitized by Google

five to ten days. It should be given in 15-grain doses every two hours the first few days, and then reduced as the case grows better. It has been claimed that the salicylates upset the stomach, cause ringing in the ears, etc., but if we take pains to get a chemically pure article we will have no ringing in the ears, nor trouble with the stomach. I usually give it with the alkalies in a glass of hot lemonade. This makes a pleasant drink and the patient will take it readily. There is another practice I take exception to, and that is in regard to the immobolization of the joint. There is no way we get ankylosis sooner than by immobilization of the joint. I take a liniment along, and no matter how painful the joint may be I start in with massage. I manipulate the parts carefully and gradually increase the pressure, and after five or ten minutes of massage with the liniment the patient can more or less move his joint without marked pain, whereas before the least touch would cause excruciating pain. In using a liniment I use a combination of oil of wintergreen with a little tincture of opium, aconite, chloroform, and turpentine in soap liniment. After application the parts affected are wrapped with cotton-batting.

DR. L. A. NIPPERT (Minneapolis): If I have understood the essayist correctly, I must take exception to his remark that endocardial and pericardial complications need no special attention. It is not the joint complications which make acute rheumatism a dangerous disease but the affection of so vital an organ as the heart, an affection which in the majority of cases becomes permanent—I mean valvular lesions. The inflammation of the joints in acute articular rheumatism is very seldom followed by a chronic affection of the joints, and usually disappears a very short time after the attack is over, while the lesions, as mentioned, are apt to be permanent. Beside the anti-rheumatic treatment, patients with beginning endocarditis should be kept absolutely quiet; their heart's action should be reduced by anodynes, quieting pain and restraining nervousness. I do not hesitate to give such remedies as veratrum viride or aconite, cautiously, to reduce excessive rapidity of the heart's action. The pain of pericarditis is usually best relieved by an ice bag over the precardial region; it also serves to reduce rapidity of the heart. As far as local treatment of the joints is concerned, any soothing application by compresses or liniments are of value, and later massage. It is an advantage to use oil of wintergreen in these liniments, because its odor convinces the patient and his friends that something is being done for his rheumatism.

DR. L. B. WILSON (Minneapolis): About three years ago I chanced to see within two or three months two cases of poisoning from salicylates, both due to patients' administering medicine to themselves. One case was that of a woman about sixty years of age with acute articular rheumatism. Some friend told her

Digitized by Google

to take oil of wintergreen. She took about two drams, and had all the symptoms of poisoning: collapse, pulse 42, deafness. It took her about three weeks to recover from this case of poisoning, but she kept her rheumatism. A short time after that a man wandered into my house one morning, and said he was almost blind, and that what little he could see looked green. He had taken carelessly perhaps six to eight drams of sodium salicylate, solution of unknown strength. He recovered quickly from the effects of the medicine, and he also recovered from his rheumatism. I give these two cases simply as illustrations of the possible effects of the sodium salicylate and oil of wintergreen.

Dr. Owen McKeon (St. Michaels): In regard to the non-effectiveness of the medical treatment of rheumatism, I have no faith in this attitude at all. I know that experiments have been made in the treatment of rheumatism hygienically on the one hand and medically on the other and results reported overthrowing the efficiency of medicine, nevertheless it has never been able to shake my faith in the medical treatment of rheumatism. I think we have all had the same experience in our practice, of having been called into a sick room where a patient was suffering from most severe pains from rheumatism, and had been suffering perhaps for days, and we have been able by the aid of medical treatment to relieve that suffering within a few hours. In my experience in the treatment of rheumatism, I cannot say that I have been so successful with the subacute and lingering cases. I have almost invariably succeeded in overcoming the pain in from 24 to 48 hours by means of salicylates and local application of anodyne liniments. When we once lose faith in the efficacy of medicine in the treatment of rheumatism, it will be a sad state of affairs, and for my part I will say that nothing can ever shake my faith in medical treatment of articular rheumatism.

Dr. James McKeon (Montgomery): I am sorry I was unable to hear the paper on rheumatism. I am a sufferer from that disease myself, and have been for many years, and if there is a cure to be derived from treatment I should like to know it. I am also a sufferer from ethmoidal disease, and have been operated on seventeen times, but it still keeps discharging, and if it goes without cleansing and an absorbing process takes place I have rheumatism. I have concluded that in my case rheumatism is due to streptococci, but whether that is true in all cases of rheumatism I am unable to say, and I mention this fact in order to stimulate this body to continue investigations along that line.

Dr. E. A. Hensel (Essayist): I will only take up the time for a few minutes in closing the discussion. Owing to the limited time I had difficulty in bringing the facts that were essential under

Digitized by Google

your observation, and in the remarks made by friends here there were some points brought out that I did not incorporate in the paper because the authors were mainly opposed to the use of those measures. The first one mentioned was the injection of sodium salicylate into the joint. I think if the doctor who mentioned this would look over the literature on the subject he would find the consensus of opinion is contrary to that idea. I may be mistaken, but I think I am right. It might be all right to use the injection in the hospital where you can have everything aseptic, but I would like to see anyone do it in a farm house twenty miles from town. In regard to massage, I think the consensus of opinion is opposed to massage in acute articular rheumatism. In reference to the treatment of heart complications, it is a well known fact that little can be done except systemically. Aconite and veratrum viride are both such dangerous drugs in heart complications that I hardly think anyone would dare leave either one in the hands of a patient unless in charge of a trained nurse, and perhaps not even then. In regard to the statement made that there is no remedy for rheumatism, I think anyone who has treated a number of cases will find the use of salicylates is of value. I do not think we can get away from that very well.

Digitized by Google

THE SURGICAL TREATMENT OF VARICOSE VEINS

C. H. MAYO, M. D.

Rochester

Surgical procedures for the relief of varicose veins have now been so long instituted that they have an established position in the history of surgery. It is no longer necessary in a report of cases to partially apologize for the operation by stating how much relief is obtained.

While we cannot say that there is one operation suitable for all cases, sufficient time has elapsed since these operations were advanced to review the best methods and those modifications which tend to simplify.

In considering varicosity of the veins of the leg, without doubt the essential predisposing cause is a congenital defect in the vessels or their enervation. While some with such a tendency develop no serious condition, others aggravate their condition by occupation, injury, child-bearing, or constipation.

The symptoms caused by varicose veins may be fullness or a sensation of fullness of the leg, edema, pain from nerve irritation increasing in severity with use, distension of the veins with at times a venous circulation in the internal saphenous from the saphenous opening to the popliteal vessels. Pruritus occurs often, with or without eczema, also pigmentation and discoloration of the skin and varicose ulcers. Some aggravated cases suffer from all these symptoms, some with one or two; others with greatly distended veins complain not at all.

Clinically, then, these cases come to the physician to have a diagnosis confirmed and obtain relief, or they come complaining of one or more of the various symptoms produced

Digitized by Google

by the disturbed venous return. According to the severity of the case, it is treated hygienically or mechanically by supports and massage, possibly aided by various lotions, or surgically by one of the various methods elected by the physician in charge.

The older methods of treatment by pressure, pin-ligation, and the like, we pass over as merely a bit of interesting history of surgical progress. Of the methods in use to-day, probably the Trendelenberg operation, or ligation and section of the internal saphenous in the upper third of the thigh, and the Schede circumcision operation in the leg, are the most popular. Multiple open ligation and the excision of the veins are also common operations. The Trendelenberg operation is simple of performance, and checks the superficial venous return at a high point. The intercommunication of the superficial with the deep veins and the external saphenous veins in the popliteal region, at least delays, and at times prevents, recovery. The benefits therefore from this method alone are slowly manifested, yet in time marked relief is afforded. The Schede operation of circumcision of the leg through all the superficial structures to the muscles, with ligation of the large veins and coaptation of the skin, impedes all the circulation below the incision, but many of the patients complain nearly or quite as much of the numbness from section of the cutaneous nerves, and slight edema following, as they did of their previous condition. There is also some danger from gangrene of the foot. If the venous circle of the thigh existed, it was, of course, but little benefited, and either required ligation or excision above the knee, yet in most cases the ultimate results were good or fair. Excision of the veins was an operation which gave good results, but was slow of performance, and opened a large cutaneous area for increased possibilities of infection. The region of the knee from flexion often developed a form of keloid or scar eczema. Operations upon the veins below the knee by local incisions and ligations give benefit at least for a time, but do not control sufficient area as a rule, unless

Digitized by Google

made more extensive than apparently warranted by the condition.

We have operated upon 125 cases of varicose veins, many times operating upon both limbs. The complete Schede operation we have not made for several years, but a partial Schede or oval incision above a large ulcer is frequently made, combined with excision of the ulcer and skin-grafting; at the same time the Trendelenberg operation, or the more extensive excision of the internal saphenous vein from the upper third of the thigh to a point 6 or 8 inches below the knee, is also performed. The removal of short areas of veins is reserved for those cases with involvement of the veins of the posterior thigh of the external saphenous. We have always been partial to the excision of the long saphenous for the majority of cases. The earlier operations were by a long incision over the vein. It required considerable time to close the wound, and seemed to be quite a serious operative procedure, especially in the time involved to accomplish what should apparently be the trivial removal of superficial veins. This we partially overcame some years ago by a long incision both in the thigh and in the leg, leaving five or six inches of skin intact at the side of the knee. The vein was separated above and below, and under slight tension a pair of forceps was employed to enucleate and loosen the vein in the uncut area. Gradually the method of subcutaneous enucleation was increased until the whole vein was removed by means of three to five incisions of one inch in length. More recently we advised a ring vein enucleator which consists of a one-fourth-inch ring of steel with a long handle, the whole instrument being not unlike a blunt uterine curette, which would possibly serve the purpose with the ring bent at a more acute angle. We have also had made a pair of long heavy forceps which are hollowed out in each blade so as to form a long tube when closed about one-fourth of an inch in diameter. The vein is sought for and severed in the upper third of the thigh. The proximal end ligated, the lower end is clamped an inch from the end which is passed through the ring of the enucleator or placed

Digitized by Google

in the tube of the forceps, and the clamps are transferred to the end of the vein. By a gentle pushing force, the ring or forceps is pushed down the vein held under tension for six or eight inches, tearing off the lateral branches, when the point of the instrument is forced against the skin from beneath, and a small incision made in the skin to the ring or forceps, which is pushed through the opening, holding the vein in like a thread in a needle eye. The vein loop is drawn out of the opening and also from the instrument, which is removed and re-threaded on the vein, and again forced through the new skin opening, following the vein, and is pushed down to a lower point where the small incision is again made, and the same process of removal repeated. The small lateral branches are torn off, and, as a rule, have enough muscle structure to close themselves. Below the knee the branches are larger, and the vein is more adherent, being more superficial, so that a short distance can be traversed. Hemorrhage is avoided first by position. An ordinary gynecological standard is placed in position, and the leg raised in straight or extended position and supported by the ankle. This position renders the limb partially bloodless, as well as secures elevation and accessibility of the field of operation. Should any branches cause more than momentary hemorrhage, they can be checked by a small pack, which is left for a few minutes in the incision from which it arises, or an assistant can usually instantly check hemorrhage by a pressure-pad held against the skin over the region from which the blood escapes from the vessels.

In a few cases where the veins are enormously and irregularly dilated the stripping process is impossible through the whole extent of the saphenous. The Bristol method is then used of torsion removal of the veins by forceps through open incisions, as an adjunct to the enucleation treatment.

Should there be a persistent eczema after a week's preparation previous to the operation, it is proceeded with as usual, the ulcer being excised before enucleation of the vein. The ulcerated area is skin-grafted. The eczematous area is now

Digitized by Google

painted with compound tincture of benzoin, which acts as an aseptic varnish, literally sealing the surface until the incisions have themselves become sealed against infection, serving a purpose for a longer period, yet acting somewhat like Murphy's rubber dam for abdominal operations. The dressing is applied, and the patient placed in bed with the leg somewhat elevated by two pillows. In twelve days he is allowed to get up, wearing an elastic porous bandage for a few months, for a support.

The method outlined has reduced the time for operation very considerably, and has placed it in the class of relatively trivial operations, although sepsis may render it one of the most serious.

DISCUSSION

DR. A. MACLAREN (St. Paul): I can agree very thoroughly with Dr. Mayo in the conclusions which he has come to. I had the pleasure of seeing him do this operation a little while ago in which he used this ring enucleator in a very satisfactory way. The next day I saw another surgeon do this same operation, where he himself and four assistants, all at work, did about the same amount of work in four times the length of time, using the old method. Any procedure which saves any considerable amount of time is very important, both to the patient and to the operator. My experience has been that the Schede operation is usually a very tedious one, and takes a long time. Mr. Mayo's operation is an excellent one, and I shall certainly try it the next opportunity that I have.

DR. J. E. MOORE (Minneapolis): I feel obliged to Dr. Mayo for his suggestions. This is a class of cases that the average surgeon would as soon not have come to him, because, as Dr. MacLaren voices our experience, it is a tedious operation and not satisfactory—never satisfactory when the patient is a number of weeks convalescing; and the cutting of the superficial nerves is not so simple an affair as many would have us believe. The patients complain a long time afterward, and they have a sensation a good deal like that of a patient with tabes. They cannot walk in the dark, and some patients never get entirely over it. The removal of a large number of veins from an extremity through the length of each vein is a major operation, and I can understand that a beginner in surgery might think it a simple thing, and have a very serious time with his patient. I have practiced that same way myself, not cutting the whole length of the integument, but pulling the vein down. It is surprising in the upper part of the thigh, as the doctor has said, how easily that can be done, but in the lower part it is not

Digitized by Google

an easy matter to pull out a vein, and sometimes I have found it difficult to dissect it out. If we have not made an incision the whole length of the thigh, we can better afford to make incisions about the calf of the leg.

DR. W. E. ROCHFORD (Minneapolis): I have performed the Schede operation about a half dozen times within the past four months. One of the cases now in the City Hospital I looked at just before coming to the meeting this afternoon. I think up to the present time the Schede operation has given the best results, though no operation is always entirely satisfactory. It is not such a difficult operation. The particular thing about it, as in every other operation, is to be absolutely clean in your work. So far as dissecting out the internal saphenous vein, I think it is a good plan to remove six or eight inches of it. Cutting the saphenous nerves causes a loss of sensation for a few weeks or more, but does not seem to occasion any serious trouble. There is some edema, which soon passes away. The patient should wear an elastic bandage for a number of weeks after getting up. Dr. Ochsner suggests some modification in this operation. Instead of making a complete incision, he leaves about an inch opposite the spine of the tibia and the same amount on the posterior surface of the leg, thus avoiding a scar entirely around the leg. My cases have been confined to the bed for two or three weeks, and then I put on a bandage, and let them up. Where there is an ulcer I resort to skin-grafting. It does not always succeed at first, and it may be necessary to skin-graft again. The operation is simple, and can be performed by anyone at all familiar with surgical work.

DR. H. N. WHEELER (Grand Forks, N. D.): I do not know that I have anything to say, except in commendation of this procedure. The dissection of the whole vein is the method I have pursued. I have not had very much experience, but what cases I had have been successful, but I do not think you can make so long an incision in the skin without sooner or later having suppuration, and the operation described would diminish that risk, and is that much of an advantage.

DR. L. F. SCHMAUSS (Mankato): There is one thing that has been spoken of that is of the greatest importance, and that is absolute cleanliness, no matter what method is followed. One of the speakers referred to this, but he did not give the reason why we should be so careful in doing this operation. The fact is that if you get infection in connection with any work upon the veins, we are apt to have a very marked and serious reaction, and it is therefore especially necessary to exercise the most scrupulous cleanliness. In Cook County Hospital, we performed the Schede operation, but most often practiced simple excision of the most promin-

Digitized by Google

ently dilated parts of the vein or veins, excising four or five inches of the vein at those points, and, as a rule, this gave very satisfactory results.

DR. C. H. MAYO (Essayist): The points brought about the Schede operation being successful depends upon whether we have a communication in the popliteal space with a deep vein and a superficial. In some of these cases they lie down, and the swelling goes down, and you can hardly see the line of the vein, but the minute they rise up you can see this circle, from the saphenous opening to the popliteal space, fill, and the Schede is not going to cure that circle. Nor is the Trendelenberg operation going to relieve, except very slowly where there is a great deal of trouble below the knee. The Ochsner method is not a complete Schede. The Schede is a complete circumcision, and may be a dangerous thing. Only a year ago a foot was amputated in Chicago following such an operation. The contraction of scar tissue, which takes place in a circular manner, cuts off circulation, and so this case has been reported as an amputation following the Schede operation on the leg. When we are to deal with a case for operation and the question of deep vein condition arises, operators may think they have had thrombophlebitis, and where edema is very marked for one or two years following, that it would be an easy matter to remove the saphenous veins, if we did not take chances of gangrene. If the patient in such cases can wear an elastic support for some time it is a very good thing, but if the support shuts off the superficial veins returning they cannot stand the pain, proving the potency of the deep veins. In regard to making a portion of them Schede, we made a good many of them, and I have kept watch of those patients for a considerable length of time, and they complain of a numb foot and edema. They keep wanting to know how long such a condition is going to keep up. In regard to skin grafting these ulcers, I will say that it is better to excise the ulcer entirely. Usually beneath the ulcer there is a vein and it is of no more good than if it were a rubber tube; it has no connection with the veins returning from the ulcer.

Digitized by Google

CULINARY HYGIENE: SOME HINTS ON PREPARATION AND SELECTION OF FOOD

MARY McCOY, M. D.

Duluth

PRELIMINARY

My apology for writing this paper, if one is needed, is the woeful lack of knowledge manifested in the selection and preparation of the common articles of food. And as the physician in a large measure educates the laity in those things which pertain to hygiene, I thought a paper that would give in compact form some helpful hints would be useful.

One-half of the cooks and nurses cannot prepare an egg or cook a dish of oatmeal so as to render them digestible. The physical as well as the moral well-being of our patients depends so much upon what they are fed, that I beg indulgence for calling your attention to a subject so common-place as culinary hygiene, which perhaps after all is a misnomer.

Good food properly selected and prepared is the first step on the road to health, and this is what I am trying to tell you how to procure, albeit in a crude and imperfect manner.

I have consulted something like fifty authorities, and drawn largely from my own experience in the preparation of this paper, and I hope it will be interesting to you.

MEATS—PROPER SELECTION OF

BEEF.—The lean of an ox-beef should be fine and close-grained, bright red, well marked with fat, and have also a thick layer of fat. The fat should be firm and have a yellowish coat. Cow-beef has a lean of close grain and slightly paler red. The fat is white and firm.

When pressed with the finger all beef should rise up

Digitized by Google

quickly. Tenderness and taint may be detected by running a skewer into it. Poor and inferior beef is of a dark-red or very pale-red quality, has a skinny fat, and the dent made by the finger returns slowly or remains visible. Meat of a dark-red color shows that the animal has died without being bled, or else was driven so hard before being slaughtered that the blood was forced into the muscles and would not drain away on bleeding. If the lean is pale-pink in color with a small amount of fat, it shows that the animal has died of some wasting disease, such as tuberculosis or glanders.

The suet of prime beef is dry and crumbles readily. The best corn-beef has a thick layer of fat around the lean part. The animal should not be above two years old for prime beef.

VEAL.—To be perfect veal should be a delicate pink, and the calf should be between six and ten weeks old before killing. Very pale (bob) veal should not be used. The fat around the kidneys should look firm and white. If the flesh is red and watery with very little kidney fat, the meat is poor and unfit to cook.

MUTTON.—Mutton is in its prime when the animal is about three years old, but is good when the animal is from one to five years old. The lean of mutton should be bright-red, close, and firm and tender to the touch. Fat should be white and firm.

Spring lamb is at its best when between six weeks and five months old. The flesh of lamb has a delicate pink tint. The back and kidney fat of lamb is abundant and white. Lamb of inferior quality has scant yellowish fat, and the flesh is soft and watery.

PORK.—Say what we may against it, pork is a most valuable kind of meat, especially for the poor man, and the laws governing its sale should be so stringent as to protect him.

When pork is prime the rind is thin, white, and smooth, and cool to the touch, and the fat, white and hard. Small and medium-sized pork is better than large and too fat. The best is that which weighs from fifty to one hundred and fifty pounds.

Digitized by Google

Measly or parasitical pork, which is unfit for use, is detected by feeling little kernels in the fat.

Bacon and ham, similarly, should have thin rinds, be smooth and cool to the touch, have firm fat, and the lean should be a clear red. To ascertain if a ham is perfectly sweet, insert a skewer clear to the bone; if, on drawing it out, it seems to have a disagreeable odor, the ham cannot be good. Small hams are much to be preferred to large ones.

It is economy to buy all meats—beef, pork, etc.—streaked with fat, because fat takes the place of water in meat.

In hot weather meat will keep better if rubbed over with salad oil or drippings to exclude air or germs of putrefaction.

POULTRY.—Poultry should never be eaten in less than six or eight hours after it is killed, but should be picked and drawn as soon as possible.

There is no worse disgrace to our northern markets than the practice of sending whole dead fowls to them. The flavor of the contents of the craw and intestines impregnate the whole body. Those who are conversant with the habit of careful country housewives of keeping up a fowl a day and night without food before killing and dressing it for their own eating cannot but regard with disgust the surcharged crop and puffy sides of those sold in the shambles.

Fowl, as soon as dressed, should have a piece of charcoal wrapped in cloth laid inside them and kept there until they are about to be cooked.

When fowls are not dressed as soon as killed bacteria cannot fail to penetrate to the flesh in proximity to the entrails.

The entrails of a fowl bear the same relation to its body-weight as do those of any other animal, and if it is unhealthful to leave the entrails in hogs or cattle it is likewise in fowl. The attacks of cholera-morbus, enteritis, etc. that physicians are called upon to treat at holiday times, are caused, in a large measure, by these ptomaine-poisoned fowls.

Digitized by Google

GAME.—Game may be kept two weeks in winter without spoiling, provided it has not been packed and shipped. Birds to be kept fresh should not be picked, but a small opening should be made just large enough to remove the entrails, and this should be done without breaking the gall-bladder. If the gall-bladder should be broken, pick the bird, wash well, and cook immediately, for it will not keep. Birds may be hung by the feet in a cool, dry place till the feathers come out easily.

The bodies of rabbits and hares should be rather stiff, and free from unpleasant odor, and the flesh should have a reddish appearance. If the animal is young it will have soft paws and ears; if old the ears will be stiff and the edges rough, and the paws hard and worn. Tame rabbits are not fit for food.

Fowls and game should be wiped inside and out with a damp towel, not washed as washing spoils the flavor. The practice of roasting birds with the entrails in them, as some do the woodcock, is very filthy, as well as unhygienic.

All the germs and parasites which infect meat can be killed by heat with the exception of the anthrax germ, which I believe has resisted, so far, all methods of destruction.

Among the chief objects in cooking meat are the loosening and softening of the tissues, which facilitates digestion by exposing them more fully to the action of the digestive ferments; the killing of parasites, and rendering harmless organisms that otherwise might expose the eater to great danger; the coagulation of the albumen and blood, making it more acceptable to the sight; and the developing and improving its flavor by the addition of condiments which aid digestion by stimulating the digestive organs to greater activity, but this is not of so much consequence as is commonly supposed.

Meat boiled until entirely tasteless has been found by actual experiment to be easy of digestion. Probably cooking diminishes the ease of digestion of most meat. It cannot add to its nutritive material, but may take away a considerable amount of it. This depends more or less upon the

Digitized by Google

manner in which it is cooked. To roast properly the meat should be seared over and then put in a very hot oven for ten minutes. This will seal the outlets to the juices; then the temperature should be lowered, and the meat roasted twelve minutes to the pound, if the roast is desired rare, or twenty minutes if desired well done. Similarly, when boiling meat, it should be immersed in boiling water, and allowed to boil vigorously for ten minutes, and then simmered for from thirty to forty-five minutes to the pound, depending upon age. The same process should be repeated for corn-beef, except that it should be boiled a few minutes longer. The habit some cooks and housewives have of thrusting a fork into a roasting or boiling piece of meat is disastrous to its tenderness and juiciness.

Meat for soup or gravy should be put on the fire in cold water, and simmered very slowly. Soup should not be regarded as a luxury, neither as a last resort for poverty, but as a necessary part of a dinner. The clear stock of soup has very little nourishment. Hot water coagulates the proteid, and once coagulated proteid will not dissolve in water, and is skimmed away in the scum, which rises to the top and which is the only valuable part of the soup.

Fish.—When fresh, the eyes of fish are clear, the scales brilliant, the gills a vivid red color, and the body stiff, leaving no mark when pressed by the finger. The blood along the backbone should be a bright red. Its teeth should be white, and when it is cooking it should not blacken a silver-spoon.

The flesh of fish may contain many kinds of parasites, and if not perfectly fresh may contain ptomaines. Canned fish, as well as canned meat, should be used at once after opening. Fish taken from cold, clear, deep water, with a sandy or rocky bottom, are preferable to those from warm, muddy, shallow water. They should be killed as soon as taken from the water. If the fish is roughly handled the outer skin is injured, and very soon gives rise at these points to decay, which rapidly spreads through the fish. The internal organs begin to decompose very soon after

Digitized by Google

death. They should be bled as soon as possible, and the sooner they are eaten after capture the more wholesome they are.

EGGS.—Eggs at fifteen cents per dozen, are cheaper than high-priced meats, but still much dearer than flank-neck or brisket at eight cents per pound, so that even at this low price they are a luxury to the man who must get his proteid and fat in their cheapest form, and when we consider that for only a short time in the year are they so low in price the showing for them is poor indeed. Their food value as compared to beef is—

	Water.	Proteid.	Fat.
Beef	72.5	21	5
Eggs	75.5	12	12

Eggs, unless strictly fresh, are very difficult to digest.

CHEESE.—Cheese is rich in proteid, one pound equalling two of meat, but it is so difficult to digest that for the ordinary person enough can not be eaten to depend upon it for the supply of proteid. Gelatine has no food value alone, but if it is combined with fat and carbohydrate a person who eats it may get along with a little less proteid. It is not readily dissolved in the gastric juice, and is very difficult to digest on this account.

BREAD.—Good winter-wheat flour adheres to the hand, and when pressed lightly remains in shape, and shows the imprint of the lines of the hand. It has a yellowish tinge, and when made into a paste is not so tough and elastic as the dough from spring-wheat flour. Blending the two flours makes the best bread.

The object of kneading is to render the gluten elastic, so that the dough is capable of expanding to twice its bulk without breaking or cracking. Good flour should contain enough gluten to enable the dough after a thorough kneading to swell three times its original bulk. Flour containing too little gluten is soft and sticky, and even after long kneading makes a soft and watery bread.

Bread is light when it rises to twice the size of the loaf when kneaded. Bread should not be looked at for fifteen

Digitized by Google

minutes after putting in the oven. It should bake at least three-quarters of an hour, but the longer it is baked the more the starch is changed to dextrine. When milk is used for making raised bread it should be well scalded, and then cooled till about luke-warm. This acts as a preventive against souring.

As often as twice a week the bread-box and all flour receptacles should be scalded and dried, and exposed to the air and sun before using again, in order to guard against animal and vegetable parasites.

CEREALS.—Cereals are our best examples of starchy or farinaceous food, and are more abused than almost any other article of diet, unless it is the potato. It is well to increase the time of cooking in the printed direction at least threefold if you would be sure that your patients are not getting raw starch, which is impossible of digestion even in health, and is a fertile source of gastric disturbances. Cereals partly cooked eaten with cream and sugar are not retained in the mouth long enough for the saliva to have any effect upon them. The prolonged action of heat and moisture changes the starch to dextrine, a change similar to the first stage of digestion.

The length of time required to cook pearled wheat, pearled barley, coarse oatmeal, rolled oats, rolled wheat, rolled barley, fine hominy, and farina is from four to six hours; corn-meal and coarse hominy, six to ten hours; rice, one hour.

DISCUSSION

DR. W. E. ROCHFORD (Minneapolis): I would like to ask Dr. McCoy about refrigerated game and fish, of which we have so much in our city; what she thinks about its wholesomeness, and also about the cooking of cereals. We use a great deal of cereals in our home, and we are in the habit of cooking our oatmeal 6 to 24 hours. I am told the longer it is cooker the better.

DR. MARY MCCOY (Essayist): In regard to refrigerator fowls, the sooner a fowl is eaten after being dead six or eight hours the more wholesome it is. If the entrails are left in a fowl while it is in cold storage I think it is very unwholesome. A person who eats those fowls in the city does not know what the right kind should taste like. The contents of the entrails will render them

Digitized by Google

very unwholesome as well as offensive to the taste. My practice in preparing oatmeal is never to remove my oatmeal cooker from the stove. As soon as breakfast is over the oatmeal is boiled thoroughly for fifteen to twenty minutes, and then left to simmer until the next breakfast. I never yet knew a cereal preparation that was not the better for long cooking, and I would not take any manufacturer's word for it that his food needed no cooking. I think the worst preparations on the market are the so-called predigested breakfast foods.

Digitized by Google

SCIENTIFIC METHODS IN MEDICAL EDUCATION

R. O. BEARD, M. D.

Minneapolis

Medical education derives its inspiration from the medical profession at large; for, while the teachers of medicine are usually in the vanguard of their calling, the institutions which they serve are rarely so well endowed as to put them out of that bondage to numbers, as a means of financial support, which so frequently paralyzes educational progress. It is, indeed, the self-interest of the profession as a whole which has served as a useful check upon the output of the colleges. The men who have graduated into an already overcrowded calling are always willing to put up the bars for those who follow. The instinct of self-preservation is in this. Beyond it, however, there are always higher motives which serve as the stimuli of medical education. They who know the limitations which their own and other lives have known, are anxious to enlarge the bounds of opportunity for their younger fellows. The higher instinct of paternity extends itself to our professional posterity.

It is well, therefore, that the medical profession should keep closely in touch with the work of the schools. Those of us who have been privileged to engage during the past twenty years in what one of our irreverent members terms "the nefarious business of making doctors," know well the rapid advances which medical education has made. They have become a matter of recent history, not yet wholly written, and yet it is no small part of my present purpose to dwell upon the achievements. It is, rather, my intent to bring before this court of last adjudication—the judgment of the profession—certain of the scientific methods of teaching which medical educators are now seeking to adopt and

Digitized by Google

to secure for them perchance your approval and, if so, your support.

The movement to raise the standard of preliminary fitness to engage in the study of medicine, which has been in the throes of effort for so long, continues. It is being gradually lifted beyond the now common level of a high-school diploma to the inclusion of one, two, or even four years of academic work.

Of conspicuous aid in this movement has been the establishment in some half a dozen leading colleges, the University of Minnesota among them, of a six years' course for medical students. Their example is destined to be followed very soon by all the university medical schools. This six years' course has much to commend it to the profession. It provides a means of securing, to the best advantage, at least two years of academic training, for the first two years of the work are taken in the pursuit of carefully chosen premedical studies, in the colleges of science, literature, and the arts. It thus fulfills a fair measure of preliminary requirement. It lays a well-built foundation for the succeeding work of the strictly medical course. It offers a minimum of higher mathematics, sufficient as an introduction to the study of physics, which it treats in special adaptation to the science of medicine. It requires a knowledge of general botany as an introduction to materia medica; of the general chemistry and qualitative analysis which are thus anticipated in favor of essentially medical chemistry in the later years; of zoölogy and comparative anatomy, which leads up to the study of the human subject; and of English, German, and French as the vehicles of the medical literature of to-day. It shortens materially the period of time within which it has been possible, in the past, for the student to obtain both the baccalaureate and professional degrees, awarding to the completed six years' work the double degrees of bachelor of science and doctor of medicine. It recognizes the very vital principle that the science of histology, embryology, anatomy, medical chemistry, physiology, bacteriology, and pathology should be taught to medical students by medical men and

Digitized by Google

women, and with special reference to the applications of these studies to the science and practice of medicine. That principle puts life back into these fundamental natural sciences, and lifts them, in their influence upon human character and human action, to the level of the humanities of the educational past and the economics of the educational present. So largely does the six years' course fulfill the needs of students of medicine that it will doubtless not be long before it is elected by nearly all candidates for admission wherever it is offered.

An equally new departure in medical teaching is the so-called "concentration system." Harvard University has the credit of the initiation of this method, while Minnesota has been a ready second in her adoption and development of the plan. It has been fully applied to the work of the first two years and in part to that of the third and fourth. It consists in an abandonment of the educational vaudeville in which medical students of the past and of the present, in most colleges, have been compelled to engage, and in the confinement of their attention during each semester or half semester to two or three subjects of study. To illustrate the method: In the first year, the opening semester is occupied with anatomy and histology alone; the second semester with physiology, chemistry and materia medica. In the second year, physiology, chemistry and therapeutics are taken in the first semester; anatomy and histology in the first half of the second semester; and bacteriology and pathology in the second half. In a word, the student concentrates himself upon a minimal number of subjects at one time, and is spared much of the mental gymnastics he has hitherto performed and much of the diffusion of energy resultant therefrom. The concentration method has been in operation for two years in the College of Medicine and Surgery of the University of Minnesota with the most admirable results.

So marked has been the educational progress incident to the development of laboratory methods of study in the sciences fundamental to medicine, and so evident have been

Digitized by Google

the benefits arising from the more individual training which those methods afford, that the application of similar methods to clinical teaching is commending itself forcibly to medical educators. The most signal ability upon the part of a clinical teacher cannot make the conduct of a clinic *en masse* a scientific process. Whether on the medical or on the surgical side numbers in attendance upon a case are a bar to successful teaching. The amphitheatre clinic is spectacular, but it is not educational. It affords an opportunity of eclat to the clinician, but very small benefit to his pupils.

A clinic to be of real value to the student should proceed along the lines of actual practice upon his part. It should follow the case method from beginning to end. It should afford the student the supervised opportunity of personal examination of the patient, of a carefully reviewed diagnosis and prognosis, of preparing and completing the case history, of making urinary analysis, blood studies, etc., of observing the details of preparation for operation, of viewing operative procedures at close hand, and of following the results of treatment and the course of convalescence. One case so studied is worth more than the witness of a dozen brilliant operations or the dictum of the clinician upon a score of selected patients. In short, the clinic should be a continuous one, and the student's work should be individual and directly responsible to the instructor.

All this means clinical organization upon a scientific basis. It means the division of classes into very small sections, the arrangement of required work to required results, the multiplication and compensation of clinical instructors acting in the service of clinical chiefs, the equipment of laboratories for purposes of clinical diagnosis. It means, in brief, as it should mean, the development of the clinical arm of medical education to a place correlative with that of the laboratory arm.

The tendency to specialism which has been so marked a feature of medical practice in the past two decades, to whatsoever course it may be traced, has had its effect, for good or ill, upon medical education. Men, like lines of force,

Digitized by Google

move in the direction of least resistance, and the easy road to a competence may have been one with the channel in which the current of specialism has run. As a consequence of the dominance of specialism in practice, the specialties have risen to prominence in the curriculum of medicine. It may well be questioned whether this result has been an answer to the need of the student specialist or to the desire of the specialist himself for an announcement and a clientele. Be that as it may, an adjustment of the relationship of the special to the general branches in medical teaching is a recognized necessity. These special branches tend to multiply as new therapeutic measures are discovered, and their place in medical education is an established one. As a method of readjustment, the elective system, which has served the purposes of higher education in general so well, is in process of application to the medical course. Naturally introduced first into the senior year, it is being extended to the third year's work as well. A choice of a certain number of these electives is required, and that choice carries with it the obligation to the successful pursuit of the subjects chosen. An elective chosen has, or should have, the same value as a compulsory study. Experience has already shown that the fact of choice guarantees the peculiar interest of the student and predicates his success. Frequently, other electives than those of required choice are voluntarily pursued.

Well supplied as the professional market is with specialists of many works, there is one field in which specialism, as a matter both of teaching and practice, should be carried to a more distinct development than it has yet attained and that is the field of surgery. So rapid have been the advances and so great have been the temptation to brilliant achievement and large earnings in this field, that it has been invaded by a great army of operators who are not surgeons. To the younger men of the profession this allurement has been peculiarly strong, and many a tyro of hardihood has rushed in where the angel of experience would fear to tread. Fortunately for its own protection, unfortunately for the

Digitized by Google

credit of the profession, the public is growing as fearsome of the ready and familiar knife of the modern operator as it was of the slow, reluctant, and stranger instrument of his fathers. Medical educators and examining boards alike should meet this occasion by imposing more rigid requirements in the study of surgery and, by providing, as in Great Britain, for special tests of fitness of the would-be practitioner of surgery. There is no field in medical practice which should be so sharply specialized as that of the surgeon.

The rapid development of medical science and the growing need for the application of laboratory methods to clinical service, are making a demand for the training and recognition in practice of a class of men and women who may be distinguished, not as specialists, but as medical scientists—a class of experts in laboratory methods who shall do for the profession at large a recognized and paid service which it cannot, either in point of time or in point of fitness, do for itself.

While the rapid advances which medical education has made and is still making will eventually equalize the opportunities of scientific training for the profession, as a whole, it must always remain true, in the practice of the medicine of the future, that there is room and service for the scientific medical counsellor as for the general medical practitioner.

Digitized by Google

A STUDY OF ELECTRICAL INJURIES

H. L. STAPLES, A. M., M. D.

Minneapolis

Within the past twenty years electricity has been widely utilized as an illuminating agent, also as a motive power in the propulsion of cars and machinery. This employment is increasing with marvelous rapidity, and the future applications are well-nigh infinite. Electric cables of high potential are thickly spread through our cities, and injuries are becoming much more frequent, and though usually limited to linemen and electrical power-house employees, yet they constitute a menace to every citizen. Little has been written on the subject of these accidents, although real or supposed injuries are now common, and alleged remote effects are made a basis for litigation. For the past fifteen years I have treated practically all the injured employees of the Minneapolis General Electric Company, and many in the service of other corporations, besides a number of persons who came into contact with their wires.

A brief description of electrical nomenclature and currents may not be misplaced.

The *volt* represents the unit of electromotive force or potential, and is the force that is generated by an ordinary zinc and copper Daniell cell.

The volume or measure is represented by the *ampere*. As with a river, we may have a large volume with a slight fall; or as with a mountain stream, we may have a small volume with an intense velocity. The street railway has an ordinary voltage of five or six hundred with an enormous amperage.

The resistance is calculated in *ohms*, and is an important factor in all electrical computations. In case the epidermis is dry, this is a very great and powerful protection against

Digitized by Google

electrical harm. It is variously estimated from ten to forty thousand ohms. If the skin is well moistened, the resistance is lowered to 1500 or even 500 ohms.

The street arc light in this city is usually made by a direct current having a voltage of 50 to the lamp. The lamps are usually hung in circuits of 50, so that the extreme voltage would be 50 times 50, or 2,500 volts. You will readily observe that there is a great variation in the current which a lineman or bystander may receive.

An alternating current changes its direction about sixty times a second. This forms the primary cable of about 2300 to 2500 volts. Passing through a transformer, it is delivered by the secondary wire to stores and residences in the form of the Edison lamp of about 110 volts. This strength, except for slight burns, is absolutely harmless; but the metal socket should not be grasped in severe storms for fear of crossed wires.

Electrical injuries are of three varieties:

1. Burns of greater or less severity.
2. Almost instant death.
3. Psychical or functional disorders.

The location of burns is most frequently on the hands, next the wrists, forearms, feet, and legs. Through falls many sustain burns on various parts of the body. The burns vary greatly in intensity, being always more severe than apparent on first examination. The slight blister may develop sloughing to the bone. Often the tissues are charred, and the tendons, muscles, nerves, and blood vessels destroyed, even involving the bony structures in some instances.

The burning of the clothing may disseminate the injury.

The character of the burns is at first dry, aseptic, and indolent; later oozing and symptoms of moist gangrene may appear. The pain is often severe. These burns should be washed with peroxide or some other weak antiseptic, dressed with protective rubber-tissue strips, and well covered with cotton. Lard or vaseline ointments are not to be used at first. Skin grafting, or even amputation, may be necessary.

Digitized by Google

Blisters must be opened immediately, otherwise the rapid accumulation of serum under the epidermis gives great pain. A direct current burns more severely, especially at the positive pole, while extensive burns increase the resistance and are probably a protection.

Flash burns, or injuries to the eyes by exposure to the intense light, are not uncommon, and seen in motor-men or those employed about dynamos. The symptoms are pain, photophobia, conjunctival hyperemia, and profuse lachrymation. One severe case is reported with sloughing of the epithelial covering of the cornea. Complete recovery resulted. Subsequent examination showed normal optic discs and retinal vessels. In no case have I seen permanent injury, and this is the report of all physicians who see many of these accidents. The treatment should include cocaine, boric acid, and smoked glasses. Conditions must be extremely favorable for a voltage of less than 1000 to cause death. Persons receiving a voltage of 1000 or over may be almost instantly killed, yet perfect recovery may ensue after a contact of over 40,000 volts. The completeness and length of contact, the resistance of the body, and the strength and direction of the current are all factors. Currents through the thorax, or from head to thorax, are most dangerous.

Some are killed outright in shocks of enormous potential, or in case of lightning by immediate and complete arrest of the heart. For such cases there is no treatment. Others are left in a state of suspended vitality with heart and respiration almost arrested. From this condition they may recover, with or without artificial respiration. Sometimes a cry is heard, best described as a rapid drawing in of the breath, followed by a half cry or shriek, but nothing intelligible. The first writers on the subject stated that death was due to tetanic rigidity producing asphyxiation, rather than by direct action on the heart. Later investigators claim that death is usually caused by a fibrillary contraction of the heart muscle, and consequent anemia. Dr. Bailey of New York kindly writes me:

Digitized by Google

"As far as my knowledge goes, death by electricity is due to paralysis of the intrinsic nerves of the heart. I doubt if these changes would be sufficient to permit their recognition as such after death. The nervous system shows generally no post mortem evidence which is pathognomonic."

Dr. Irvine, prison physician at Sing Sing, gives the following interesting statements in regard to electrocutions:

"First, Unconsciousness is undoubtedly instantaneous.

"Second, There are no uniform post-mortem changes which would show electrical death beyond all question of doubt when the actual cause is not known to the physician.

"Third, The cause of death, in my opinion, is due to a combination of causes, principal of which is inhibition of nerve centers, and trauma as shown in the condition of the brain, etc., in many cases.

"Fourth, Invariably 1,716 to 1,800 volts are employed. I have seen executions expeditiously performed by a little less than 1,500.

"Fifth, The contact is full voltage about ten or fifteen seconds, gradually reduced to about 800 volts, and then pushed up to about 1,760 a second time and finally shut off, this all being done in the course of a minute.

"As a rule, we give them a second shock of eight or ten seconds full voltage, and there have been two or three cases where we have been obliged to give even five shocks before the heart ceased to beat, but in no case was there any evidence of life after the first contact, except in cardiac action."

I have recently made a very careful necropsy in a case of accidental electrocution without finding any evidence of death whatever. This man could have been revived by prompt action, I am quite sure, as the contact was imperfect and momentary. In judicial electrocutions prompt necropsies are made. It is thought occasionally a culprit leaves the electric chair in a state of suspended vitality merely, and could be revived by suitable measures.

Currents of great intensity may kill instantly by producing a heat coagulation of the cellular constituents, a direct cellular disorganization.

Digitized by Google

TREATMENT OF APPARENT DEATH WHETHER FROM ASPHYXIA OR CARDIAC PARALYSIS

Cut off the current with care, using rubber gloves, cloths, or a stick to elevate the wire, or place a board under the victim and raise the shoulders permitting the head to hang down. Don't touch the man's hands until the current is broken. Allow plenty of air and, if possible, remove the body to a house and surround it with hot water bottles. Strychnine, 1-30 grain, hypodermically, is the best respiratory and heart stimulant. Artificial respiration must be maintained for a long time. The tongue should be seized with a handkerchief, and rhythmical traction established, thus stimulating the motor nerves and muscles of respiration. Massage may be applied to the chest over the heart. Continual efforts should be maintained for hours.

A railway porter was rendered insensible by a current of 5,000 volts, and was apparently dead for forty-five minutes, but was revived by artificial respiration and traction of the tongue. A man received 2,000 volts from hand to hand. He was not badly burned, but the heart stopped pulsating, and the breath did not cloud the mirror. After forty minutes of artificial respiration he fully recovered. Another received 200 volts from hand to hand. He fully recovered in twenty-five minutes, one hand being badly burned. A man received 2,000 volts of the alternating current through his body. He became unconscious and in a state of collapse. The physicians worked over him for seven hours before complete recovery. He never had an ache or pain, or the slightest mental disturbance afterwards.

The sensations of a severe shock is described by Broca as follows: While experimenting with a Rhumkorff coil he received a powerful current. He was thrown to the ground, could not articulate, and felt as though his heart had ceased to beat. Sensation was lost in his arms and legs. The arms were paralyzed and could not be moved. The fingers were hyperesthetic. He was able to walk home, and after two days was perfectly well. Perfect consciousness was retained, and he said to himself that he was dying.

Digitized by Google

Crile has reported an unsuccessful attempt to revive a lineman four hours after the shock by direct heart massage, the pneumatic rubber suit, and the intravenous injection of a 1-25,000 adrenalin salt solution. He wisely states that we cannot expect to restore the apparently dead by resuscitation of the heart alone, but respiration must be established, and the vasomotor centres stimulated into renewed activity.

Sudden death is sometimes attributed to electricity when such is not the cause. We must remember that mental emotion, especially fright, may cause death directly through the effect on the nervous system. Many such authenticated cases occurred during the reign of terror at the time of the French Revolution. Myocarditis is a more frequent cause of sudden death than supposed. Eichhorst states that this may cause death without any change in the myocardium being observed either macroscopically or microscopically.

A man died while cleaning out an old stationary boiler in this city. For illumination he carried in his hand a portable Edison bulb. Careful examination showed the maximum voltage to be 110. The cause of death was given as electric shock. He had had a weak heart for years, and undoubtedly died of myocarditis. The slight charring of the hand by the brass socket was merely incidental.

PSYCHICAL OR FUNCTIONAL DISORDERS FOLLOWING A REAL OR IMAGINARY ELECTRIC SHOCK

There is something mysterious about electricity, and it has a curious effect on certain susceptible individuals. Quacks for scores of years have sung the praises of this wonderful all-healing fluid, while electric belts are as much in evidence as Perkins' tractors were one hundred years ago. A sublime illustration of human credulity and medical Christian Science is an old maid perched on an insulated stool absorbing static sparks for a series of chronic complaints, running the gamut from blasted affections to blind piles.

I have attended over two hundred cases of electrical injuries in employees, not one of whom developed one sign or symptom of nervous disorder; and such has been the result

Digitized by Google

in many non-employees where I have attended them from the first. In cases attended by others, about one-third have manifested nervous symptoms of greater or less severity. Where they fall into the hands of a good, kind, sympathetic doctor who is uninformed in regard to such injuries, it takes great strength of character on the part of the patient to avoid hysterical symptoms. Organic results of various injuries occur immediately or soon after an accident. They may become fatal, or partial or complete recovery may ensue. Chronic nervous diseases may later appear, and render it difficult to determine whether they are the result of accident or not. It is different with electric shocks; the injured one dies immediately, or entirely recovers.

Bailey states that it is not probable that electric currents which do not produce almost instant death, ever cause organic disease, yet they are very prone to induce functional nervous disorders from fright. Dana reports the case of a patient who had read of the killing of a man by an electric wire. A few days later he was struck by a dead wire. The blow was slight, but he fell unconscious, and later exhibited marked hysterical symptoms.

Traumatic hysteria is essentially a mental disorder, a delusional insanity. Pathological anatomy finds no place in its protean manifestations, yet it exhibits itself as a severe bodily infirmity. The patient is positive of his own incapacity, and this belief often continues for a long period. He becomes a barnacle on society, and an octopus on corporations when they are involved. Bad heredity is an important factor in the etiology and prognosis; an unstable nervous system is a birthright. A corporation is held responsible because a litigant's ancestors were syphilitic, epileptic, alcoholic, tubercular, or crazy.

A Hebrew dry goods clerk touched an electric wire with his umbrella. There was no burn, but he complained of pain in his arm, and the examination caused expressions of great suffering. The hand was mottled and cold, and the arm flexed at the elbow. He was etherized by his physician, and pronounced a fraud. This greatly ameliorated his

Digitized by Google

symptoms. A five-hundred-dollar verdict promptly cured him.

Some years ago a teamster had a horse fall in the street while passing an opera-house whose iron pillars had the reputation of being electrically charged. While raising the animal he imagined he felt a shock. The physician summoned confirmed his fears. His arm became stiffened, anesthetic, and paralyzed. Motion gave considerable pain. Several months later suit was brought for several thousand dollars. On examination I found that the anesthesia followed no anatomical lines, that the arm was normal in size, reflexes normal, and on electrical stimulation the arm was freely movable. Prominent electricians swore that the wiring of the house was in perfect condition, and by no means could the current be carried in the middle of the street even if the insulation was faulty. Local physicians declared that the man's arm was dead, and that settled it with the farmer jury. He was awarded a large sum, the corporation rendered insolvent, and the stockholders defrauded. I learned that the family history was defective in this case. He has not yet fully recovered, but has been observed to use his arm occasionally.

Charcot taught that hysteria never appears except in those who are degenerate by heredity or acquirement. This probably is true, but often difficult to demonstrate. There exists some defect in the domain of higher consciousness. The man sees, feels, smells, tastes, or hears, without knowing it, frequently losing the power of voluntary motion. False beliefs control the life of the person. This condition occurs after a slight accident in which there is an element of fright, and very often there is no physical injury whatever.

I present these typical cases of real injuries: P——, received 5,000 volts of a direct current through his hand, entering on the back where you will observe the sloughing was very extensive. There is no paralysis or other injury except from the burn itself.

Another case, Mr. W——, was adjusting some wires on a pole when he received the full voltage, about 2,500,

Digitized by Google

through his hands. He was rendered instantly unconscious, and actually fried on the cable for fifteen minutes. He revived in about half an hour, and made a perfect recovery, except for the burn scars. Not the slightest evidence of nervous involvement exists.

The effect of confidence, encouragement, suggestion, and isolation, is extremely powerful, and is the only method to promote speedy recovery. Reverse this current, and you plant stigmata which may be well-nigh impossible to eradicate.

The older the person the greater the danger of chronicity. Curiously, it is more lasting in men than in women. Alcoholism and arteriosclerosis render it more intractable.

It is absolutely impossible for a patient to get well while litigation is progressing. He thinks he must get worse, and he almost invariably does. The case adjusted, he commences little by little to execute motions and exercise special senses which heretofore he was incapable of. Relatives and friends observing these acts, commence to regard him as a fakir, and forcible means are instituted to cause a revival of energies. A few swift kicks administered by an irate wife caused a marvelous resurrection in a paralytic case which I had under observation.

Eichhorst naively remarks that traumatic neuroses very rarely occur in countries where the injured person is not entitled to damages. Out of 14,000 accidents among the employees on an Eastern railway system eight developed hysteria, no litigation being involved, while 20 per cent of the injured passengers were thus affected. Take an illustrative case. A man of neurotic ancestry imagines or actually receives a slight shock and burn, accompanied by a slight fall. He is badly frightened, and goes to bed exhausted. The good, kind physician aforesaid appears, and is impressed with the seriousness of the condition, and paralysis is feared. The patient is kept in bed, and all the neighbors are allowed to relate tales of woe. In the next hour or half hour, if the run is short, the genial, generous legal adviser appears. He is fully convinced in a few mo-

Digitized by Google

ments that the injury is permanent, and will throw his whole soul into the work of obtaining a partial recompense for the disability. Incidentally he pockets two-thirds of the blackmail, if a settlement is obtained. A sympathetic friend suggests that the symptoms are identical with those of an apoplectic who has just died. Later on a fourth party is sometimes added, that profound personage whom we will denominate the "neurologist" for the plaintiff. His last case in the country was so notoriously bad that losing his contingent fee he was obliged to walk home, hence this case is of unusual interest to him. He finds hyperesthesia in one place and anesthesia in several places, also loss of power, gravely stating within the oxyokoia, or sharp hearing, of the patient that he has unmistakable symptoms of that mythical, non-existing malady, Erichsen's spinal concussion. Unless settlement is prompt, this patient will be a curse to himself and everybody adjacent for months or even years.

On the other hand, physicians should say to patients suffering with nervous shock, electrical, railway, or otherwise, that they will positively recover; and they should not resort to drugs and electricity to cure a disease which does not exist. It is a mental state, and not a disease with organic lesions, a transient condition which, under proper advice, will soon fully disappear. Sympathy or money is the thing eagerly sought; these factors should be eliminated, if possible.

There may be a condition so susceptible and abnormal that the neurosis will continue in spite of the best environment and medical care, but this is exceedingly rare.

The electrical companies exercise great care in protecting the public from injury. Fires, rain storms, faulty insulations by rubbing, cyclones, or severe seismic disturbances may temporarily disorganize their systems, and render them dangerous. They are always willing to adjudicate real injuries where a possible liability exists.

Slight shocks, burns, and bruises on dead wires produce a series of symptoms in susceptible cases where the medical

Digitized by Google

attendant, attorney, and sympathizing friends are responsible for their development and continuance. These should be the defendants in case of litigation. Inform the patient that he is not harmed in the least, except an evident burn or bruise, and he will promptly recover. Prolong litigation two or three years, and the man is very likely ruined. If he recovers a remuneration, it frequently does not compensate him for the time lost, while if nothing is obtained after years of waiting, thinking, aching, examining, drugging, dyspepsia, and constipation, he is often damned beyond full recovery. It is usually in the power of the intelligent physician to prevent the development of this condition.

DISCUSSION

DR. F. A. DUNSMOOR (Minneapolis): I think that paper is too good to pass by without some remarks. Some of the facts presented in the paper were forcibly brought to my mind while visiting another city. I was in Dubuque, Iowa, four years ago attending the Tristate Society, and a doctor read a paper reciting severe burning injuries from electric wire coming under his care, and he had the patient in the room. His patient had been up on a pole repairing a telephone wire when he fell across a wire which conducted the current for the street railway. He made immediate contact and received the full voltage required to run the cars in the city of Dubuque. I am not going to tell you the power, but it was something enormous. He fell in such a way that he could not be removed by those who attempted to pull him off, and he just laid there and had the flesh burned off of his legs and buttocks until someone happened to think to use the telephone to call up the power-house, and tell them to shut off the current. I never saw a worse scarred man in my life. He had no other pain or trouble except the loss of flesh destroyed by the burning of the electric current. Another thing the doctor mentioned is the remarkable fact that some persons have the opinion that the people who run street cars at the rate of five cents a passenger do it solely for the benefit of an enlightened community who may suffer an accident at their hands, and then induce some doctor for a certain share or interest to assist the patient in prosecuting. They then assist in making him believe that he is rendered absolutely helpless by the electric wire, when the constant proof is that these burns do not produce spinal or nerve injuries other than that due to actual loss of tissue. It is always for the slight injury that the larger compensation is asked.

Digitized by Google

It so happens by reason of my association with railway companies that very frequently I have been placed in the same position which the doctor has undertaken to show, trying to adjust differences, and I find what he has said is true that the instinct in one who has received an actual injury is strong to acquire money from someone else as a salve for his injuries.

Digitized by Google

THE ABUSE OF DRUGS

C. R. CHRISTENSON, M. D.

Starbuck

Ever since the beginning of history the unknown and mysterious has had special attraction to the human mind. The occult sciences of ancient times were idols before which men bowed down and worshipped until research revealed the truth, when they turned again to the incomprehensible and abstruse to offer sacrifices.

The science of medicine, with its attendant halo of mystery, has had its large number of devotees in all ages. Disease, similarly mysterious, of unknown origin, and with its inexplicable manifestations, early became the subject of investigation and subsequent treatment. The remedy, in accordance with the supposed cause and various theories of the times, was either of a spiritual nature, including incantations, the wearing of charms or amulets, or the administration of drugs, not to mention surgery, which had early attained a comparatively high degree of excellence.

Gradually with the course of progress of other sciences the development of the healing art kept pace. Diseases were classified; anatomy, physiology and pathology were revived, and these sciences placed on a permanent basis, forming an organized school of medical knowledge. Then for centuries through the dark ages practically all efforts were spent in finding drugs to combat disease symptomatically. In this period of progress and retrogression no advancement of any importance was made till the last century.

The use of the miscroscope opened a vast field for in-

Digitized by Google

vestigation. Histology, embryology, and pathology became at once important factors in medical schools. The discoveries of Pasteur and Koch marked a new era in scientific medicine. Bacteriology, with the evolution of serum therapy, greatly facilitated the diagnosis, prevention, and cure of certain diseases. With the knowledge at hand, laboratory and chemical facilities, instruments of precision, the advancement of medical knowledge has doubled and trebled itself in the last quarter century.

Proportionately, our pharmacopeia has also increased in bulk and in spite of the therapeutic nihilism prevailing a few years ago, and yet to some extent, is steadily expanding.

Although medical men know that outside of a few specifics, the action of drugs is very uncertain, the drug, in many cases useless, and in still more injurious, yet they are prescribing them in as large quantities as ever. In out boasted knowledge of disease we are still doing no more for the cure of human ills, by these means than the ancients and barbarians did centuries ago, and perhaps they even did better than we.

Rejoicing in our strength and power to cope with the morbid conditions of the human anatomy, we are apt to ignore nature's methods that our superior (?) skill may be proven. Why are physicians prescribing drugs in so many of the acute, infectious, self-limiting diseases when they know in their hearts, or ought to know, that they are seldom needed? Why is it more rational to administer antipyretics in such cases than for an engineer to turn back the indicator on the steam gauge to reduce pressure in the boiler? In what does the so-called symptomatic treatment consist? Mostly in opposing nature's process of cure, when we consider that symptoms are simply efforts to relieve the system of disease. For example, taken an ordinary case of pneumonia. The pain, temperature, increased pulse-rate, cough, expectoration, etc., are the attempts of the human economy to rid itself of the invading enemy, and any drug administered for the purpose of removing any of the above symptoms is

Digitized by Google

interfering with a natural cure, besides introducing a foreign and possibly injurious substance, often in heroic doses, for an already overloaded and clogged system to eliminate.

What is true of pneumonia can be said of practically all the acute infectious diseases: they are bound to run a certain course in spite of all medication, and any attempt to abort or cure them is a snare and a delusion.

There is a prevalent belief that internal medication is indicated in a number of diseases where pathological bacteria are present, or may be the causative factors. In tuberculosis we have exhausted our list of bactericidal remedies in the vain hope of their reaching the seat of disease with sufficient potency to destroy the bacilli, after having passed through digestive and absorbing organs, and being changed by the action of all the fluids of the body with which they come in contact, to say nothing of the injury done to all the tissues and fluids, healthy or otherwise, destroying their natural resistance and immunity.

Typhoid, another example of this group, has been and is similarly treated. In cases of doubtful diagnosis where shot-gun mixtures are given in the fond hope of hitting some of the conditions present, it is well to bear in mind that if medicine is powerful enough to do good it will do an equal amount of harm, if not indicated or suitable in every respect.

During the writer's school days he was taught that a saline laxative in acute cases of appendicitis was a correct form of treatment. Theoretically it might seem so at first sight, but practically it does not seem to benefit the patient in any way. Now we see the absurdity of such treatment by observing that in this disorder where there are accompanying symptoms of pain and cessation of peristalsis, unless there co-exists enteritis, we have an indication to keep the intestinal tract at rest and prevent spreading of infection. Vomiting and loss of desire for food indicate that no food should be given. The treat-

Digitized by Google

ment naturally resolves itself into letting the patient alone, as far as medication is concerned, which experience has proven to give the best results.

Equally absurd has been the indiscriminate treating of all forms of gastric or intestinal indigestion with digestive ferments, predigested food, and artificial digestive juices. Imagine how much stronger a weakened digestive organ will become by having its secretion supplied artificially for months, besides feeding the sufferer on so-called predigested foods, and its functions left idle all this time. With more time spent on differential diagnosis and less on experimental drugging many cases of so-called indigestion will be found to be caused by diseased appendices or gall-bladders, or by gastric or duodenal ulcers. As these cases do not entirely belong to the internist, and nervous dyspepsia is treated centrally, but very few are left for direct medical treatment. Diabetes, from its peculiar symptoms, cannot be treated with any hope of permanent cure. Likewise chronic Bright's disease. Still patients afflicted with the above two diseases consume enormous quantities of drugs with little or no benefit.

Lister made possible antiseptic surgery, and that which evolved from it, aseptic surgery. We have passed through the period of irrigating tissues with antiseptic solutions, and now give them at least a fighting chance to use their native resisting power against septic invasion. The surgeon has learned from experience to depend upon asepsis and native immunity for his success. Even in pus cases there is less faith in the efficacy of local drugs, and more in the inherent resistance of tissues.

There have been no new theories advanced, nor any original thought brought out in this paper. Every physician knows in his heart that in the class of diseases mentioned, and in many others, he often prescribes without expecting to derive any benefit therefrom, except its moral effect upon the patient or his friends, whose blind

Digitized by Google

faith in the magic drops and powder is sometimes astounding.

But perhaps our greatest sin lies not so much in prescribing the simpler remedies as in leaving our father's deities and wandering after strange gods in the form of proprietary medicines, the ingredients of which we do not know or are unfamiliar with. These so-called ethical preparations for the profession only, put up in attractive forms by the Tom, Dick, or Harry's pharmacal or chemical company, and exploited in the advertising columns of medical publications, are prescribed by physicians at an alarming rate, and bought by the patient without even consulting the doctor. Such preparations as Pepto-mangan, Cascara, Glyco-Thymoline, Tongaline, etc., are as familiar to the public as Ward's Liniment, St. Jacob's Oil, or Rocky Mountain Tea. Many of these firms also send out to their patrons printed prescriptions for baby's colic or grandpa's corns.

This subject of proprietary medicine has been discussed ably and at length in our medical journals and at meetings, and needs no further comment except endorsement of the strongest condemnation of the practice.

The abuse of antipyretics, hypnotics, narcotics, and patent medicines by the laity, so long as such are not advised by the regular physician, need not be considered here.

Perhaps the day will soon come when thorough and scientific investigation will reveal that the human body is a perfect organism, with its own laboratory for elaborating its own remedies and supplying them to the system in proper quantities and strength. This we know to be true in acute infectious diseases, which produce their own antitoxic sera, and why not to a certain extent in other pathological conditions? When research has cleared away the mystery surrounding the causation of disease, when we open our eyes to what nature does, we shall cease to treat empirically. In proportion as we understand all the conditions present in a disease we shall

Digitized by Google

find less use for drugs. It is in the unknown and complicated cases that we prescribe shot-gun remedies, which a better diagnosis often reduces to a single ingredient.

The action of drugs in the human body will always be more or less obscure. The therapy of iron is still as uncertain as ever and in specifics we are mostly concerned with results. Until medicine then becomes more scientific and more of an exact science let us devote more time to painstaking inquiry into the etiology and pathology, more care in diagnosis, and, unless scientific and specific treatment can be applied, depend more upon the inherent power of resistance and repair of the body, hygienic measures, and nature's true handmaid, the trained nurse; and we shall find, in the words of the venerable Dr. Holmes, that, "If the entire pharmacopeia were thrown into the sea, it would be infinitely better for humanity, but all the worse for the fishes."

Digitized by Google

THE SURGICAL TREATMENT OF EPITHELIOMA OF THE LIP

J. CLARK STEWART, M. D.

Minneapolis

It is an unfortunate fact that the usual small size and slow course of this lesion when seen early has seemed to justify a large amount of incomplete and poor surgery. All medical men will admit that after a time in all cases the cervical lymph nodes become involved, and that after such involvement surgical interference is not only vastly more difficult, but is followed by results vastly more unsatisfactory. Also, few would claim to be able by any physical examination to determine just when the lymphatic infection has begun.

Why then does the large mass of the profession, including many very eminent surgeons, adhere to the old V operation without attacking the lymphatics? An eminent surgeon, well known to you all, answered this question lately by saying that he had never done anything but the old V operation, and that he did not believe that he had had thirty per cent of recurrences. How about his duty towards that thirty per cent? Had they no right to an operation more likely to prevent recurrence?

Any operation for so grave a disease as cancer, even in this its more benign form, should be the most perfect that can be devised to prevent recurrence in all cases. The ideal operation for carcinoma consists of the excision of the new growth, including a sufficient amount of healthy tissue on all sides, with the lymphatics and the first chain of lymph nodes, in one piece without any incision of the removed tissue, and the closure of the wound by a plastic

Digitized by Google

operation or skin-grafting so as to obtain union by first intention and not by granulation.

All these ideals can be attained in the early operation for epithelioma of the lip without seriously increasing the operative risk, and with great diminution of the recurrence percentage. The same can be attempted in later cases involving the lower jaw and floor of the mouth, and while these cases have sometimes infection beyond the field of operation, many can be relieved.

The point which I wish to bring before the society is that any one suffering from an epithelioma of the lip, however small, may have beginning lymphatic infection, and that anything short of a complete operation is therefore gross injustice to such a patient. Still worse than insufficient operation is the treatment by caustics and *x*-ray. By neither of these can a case with beginning lymphatic involvement be cured, and the delay may render all operative interference useless. It must be admitted that cures do result from the use of caustics and probably from *x*-ray treatment, but this can only be in purely localized growths, and here the knife properly used would give surer results. It is my opinion that the exploitation of the *x*-ray cure for cancer of all kinds has been a great damage to sufferers from cancer, as it has resulted in the wasting of the time when cure is possible by operation, in seeking after new gods, and finding failure in the immense majority of cases treated.

The operation to which I wish to call your attention has been proposed in various forms by several surgeons, but has never secured the acceptance accorded to its prototype in breast surgery, the Halsted operation, which is to be regretted, as its statistical results are far better, owing to the lesser malignancy of the growth attacked.

The essential parts of the operation are, making incisions at least one-quarter of an inch from the epithelioma through the whole lip to the jaw, and carrying both down to the lower line of the jaw and then curving backward along the jaw line to the submaxillary glands on each side. These two transverse incisions are next joined by a transverse cut

Digitized by Google

of the skin only, and then the skin flap is dissected down to the hyoid bone in the middle line and to a line joining this point with the lateral incisions on each side. The fascia, fat, and loose connective tissue are then incised at the lowest point reached, and dissected free from the muscles, thus raising a wide flap containing all the superficial lymphatics of the neck. At each outer corner the submaxillary glands are exposed, and removed with the lymph node behind (this being one of the most commonly infected of the cervical glands), and the whole taken away in one piece with the original mass enclosed by the incisions circumscribing the epithelioma. This perfectly fulfills the conditions of the ideal operation as to the removal of the tumor and connections, and nothing remains but closure of the wound, and the formation, if needed, of a sufficiently long lower lip.

In early cases where little lip need be removed, direct suture is satisfactory, but when over three-fourths of an inch of the vermillion is removed a plastic operation must be done to restore the lower lip to comfortable length. Various procedures aiming at this are figured in the text-books, but are more or less unsatisfactory in not furnishing a mucous membrane to the new part of the lip.

I wish to describe a method not figured in the ordinary text-books, which has proved very satisfactory in my hands in a number of cases.

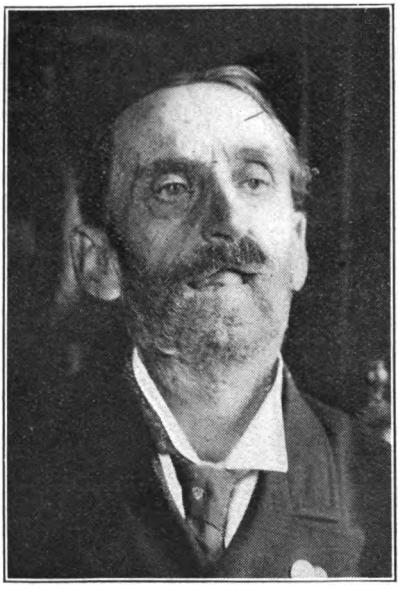
The mouth is extended outward by a straight cut through everything but the mucous membrane, the length of incision depending upon the amount of new lip needed. The mucous membrane is then dissected loose from the inside of the cheek far enough to amply cover the new lip and, then is incised and sutured to the skin edge. Before completing this suture the extra length of the upper lip must be adjusted, either by folding of the corner or by excising a triangle of skin only whose base is as long as the outward incision. By either method you can obtain good cosmetic results with little trouble.

Digitized by Google

I append histories of two recent cases of which I have photos.

CASE I

Capt. P——, aged 77, was referred to me by Dr. T. S. Roberts for *x*-ray treatment. He has had an indurated ulcer of the lower lip for the past year which has been growing worse. He has had no treatment except that from a magnetic healer.



Case 1. Showing new mouth with thick angles, due to the deep extension into the cheek.

Examination shows an indurated ulcer extending along about one inch of the free border of the lip near its center. There is a nodule about one-half inch below this ulcer in the lip, and there are two palpable glands below the jaw. His general condition seems to be fair, though he is decidedly senile.

Operation, May 16, 1903, at Northwestern Hospital. Morphine hypodermically, and a very little chloroform.

Digitized by Google

The lip was removed, getting nearly one-half inch outside of the ulcer on each side and taking out a broad V to the chin, where the incisions were extended along the line of the jaw to the region of the carotid artery. The skin between these two incisions was dissected down to the larynx, and then all soft parts between the carotids laterally were dissected up to the jaw, and removed with the lip. On both sides the submaxillary gland was removed and with it a suspicious looking lymph node. The wound was sutured with silk-worm gut and horse hair. The mouth was narrowed by the operation so that the lower lip was about three-quarters of an inch in length, consequently incisions were made at each angle outwards three-quarters of an inch, incision being made only to the mucous membrane of the cheek, and this being dissected up to form a flap, which, turned and sutured, furnished mucous membrane to the new lip. On the right side the upper lip was turned upon itself and sutured so as to form an angle. There was no reaction after operation. Union was primary throughout, and the cosmetic result is very good indeed except that the patient's smile is now somewhat sardonic. Patient left the hospital May 29th apparently well.

Microscopic examination of the removed parts shows an ordinary epithelioma of the lip with considerable tendency to infiltration. The lymph nodes were carefully examined without finding any involvement.

The patient is well and free from recurrence one year later.

CASE II

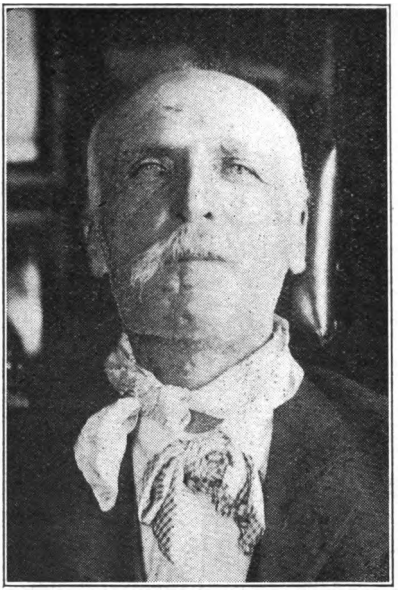
Mr. T——, aged 59, referred to me for *x*-ray treatment. Patient has always been healthy; no specific history. Eight years ago he had a sore on lower lip which was quite obstinate and recurred from time to time. Five years ago it was burned off with nitrate of silver, and remained away after this for four years. One year ago it recurred and has remained as an open ulcer since that time.

Examination shows a small indurated ulcer of the ver-

Digitized by Google

million edge of the lower lip, about one-half inch long, to the right side of the middle line. There is a scabbing and excoriation of the muco-cutaneous junction, running from the ulcer over to the left angle of the mouth, but there is no induration. Two moderate-sized lymph nodes can be palpated under the jaw.

Operation, June 6, 1903, at the Northwestern Hospital. Chloroform with three-eighths grain morphine, hypodermically, was administered.



Case 2. Photograph taken immediately after union was complete, and before the scars had at all smoothed down.

A complete operation was done, removing the epithelioma with all the subcutaneous tissues in connection with the contents of both submaxillary triangles of the neck. A number of small glands were observed, and one was removed from behind the field of operation on the left side. Both submaxillary glands were removed, and enlarged lymphatics were found in connection with each. As only three-quarters of an inch of the lip was removed, it was possible to

Digitized by Google

unite it without extending the angle of the mouth. The wound was sutured with silkworm gut and horse hair. Patient re-acted well, but had an extremely sore mouth with bad salivary discharge. About the fifth day there was a profuse brown salivary discharge from the lower angle of the wound and neck. This continued, then gradually lessened, but became very offensive throughout the two weeks of his hospital stay. In spite of this his temperature was normal, and the cutaneous wound healed by first intention. He left the hospital June 19th with a small, slightly offensive, purulent discharge from the lower angle of the wound and neck. Mouth is now well, and the excessive flow of saliva has ceased.

It was impossible to explain the salivary discharge from the neck. Two theories were considered: one that the fluid came from the mouth through the gaping between the jaw and clinging tissues, but it was impossible to prove any such connection by examination; the other more probable explanation was, that it came from an accessory submaxillary gland whose duct was opened by the operation, and that this continued to discharge until healing took place.

Microscopic examination showed a typical epithelioma in the lip, and no involvement of the lymph nodes or submaxillary glands.

May 1904, patient returned well with no recurrence. He has had no further trouble with the saliva, and his sublingual glands seem normal.

DISCUSSION

DR. C. H. MAYO (Rochester): The question the doctor has brought up in his paper is a timely one at this particular time. We find few pages devoted to the old anatomy of the lymphatic system in old text-books, but there are areas of lymphatic glands tributary to nearly all cancerous deposits, and when a patient comes with a cancer we must study the lymphatic area which is involved. In Halstead's operation he removes the lymphatic glands from the armpit to the neck. In cases of a malignant type, removal of the lymphatic glands does not always give the results hoped for, because in some cases we are already too late, and metastasis has occurred that otherwise would not have reached the circulation.

Digitized by Google

Cancer of the lip rarely recurs, locally, and that is why cancer-paste quacks have flourished. It so rarely occurs that they call it cured, but they may have cancer of the cervical glands, the liver, or an intestinal cancer. There is a metastasis, and so cancer of the uterus does not kill. They die from kidney trouble, secondary to blocking the ureters. In cancer of the rectum the new operation has entirely superseded the old. If you are not in time to remove the glands involved, no operation is going to be successful, unless it is the total removal of the rectum and of the lymphatic glands involved. I made the point, some time ago, that the lymphatic system, where the metabolism is so great, is the richest up to puberty, but after that it disappears gradually, and in old age it is quite deficient, so the younger the patient is with cancer, the surer he is to die. You never see him until his lymphatic system is involved. An old man comes in with cancer of the lip—a man sixty to seventy years of age—he shows you a cancer that he has had for two years, and yet not a gland is involved. You cannot say that of a man under 45. He will usually develop trouble in the cervical glands, so we make a removal of the cancer of the lip, and he comes back with cancer of the neck, and it is the cause of his death ultimately, although he may have had several operations on one side of the neck. Such cases may live for some time; but they do not leave the hands of the surgeon, and finally die. A woman comes to you with cancer of the breast at 70, and says she has had it two or three years. How many women are there of 38 that will show that same condition? They will have recurrence within a year or two, and if a man has a history of successful cancer operations you will find that every decade of life has added to his success, but it has not come from young people. (Applause.)

Dr. L. F. Schmauss (Mankato): I would like to say a few words in support of what Dr. Stewart said about forming a new mouth. I had a case five years ago in which the entire lower lip and part of the chin had to be removed. After bringing the flaps together, we had a protruding upper lip. I cut this off, but it still left what the doctor called a "sucker mouth." It was too short. To widen the mouth I made an incision an inch long on each side, united the mucous membrane to the skin, and the results (the size and shape of the mouth) were very satisfactory.

Dr. J. C. Stewart (Essayist): I am very sorry this paper could not have been discussed more. I believe the great bulk of surgeons are doing the little V operation in the cases that come into their hands, and they have no right to do so. Any patient is entitled to the removal of the whole associated lymphatic system. No man has a right to temporize with epithelioma of the lip, because when epithelioma involves the lymphatics of the neck the case is practically hopeless. Sometimes we can relieve these cases by dissec-

Digitized by Google

tion, but they almost always recur. I do not think that age is a bar to the early dissemination of cancer cells, and, as I said in the paper, I do not believe we have any criterion to judge when the cancer has become disseminated. The extreme danger lies in making the small operation, and not adopting the more radical treatment for epithelioma. The patient comes back with a recurrence in only a small percentage of cases, but that small percentage has the same right to life as the rest, and epithelioma of the lip should be treated early and with the best of our present knowledge, to give this small percentage the best possible chance for recovery.

Digitized by Google

Constitution and By-Laws

Adopted in 1903 and Amended in 1904

CONSTITUTION

ARTICLE I—NAME OF THE ASSOCIATION

The name and title of this organization shall be the Minnesota State Medical Association.

ARTICLE II—PURPOSES OF THE ASSOCIATION

The purposes of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of Minnesota and to unite with similar societies of other states to form the American Medical Association; to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the material interests of its members and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public, in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III—COMPONENT SOCIETIES

Component Societies shall consist of those county medical societies which hold charters from this Association.

ARTICLE IV—COMPOSITION OF THE ASSOCIATION

Section 1. This Association shall consist of Members, Delegates and Guests.

Sec. 2. Members. The Members of this Association shall be the members of the component county medical societies.

Sec. 3. Delegates. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component societies in the House of Delegates of this Association.

Digitized by Google

Sec. 4. Guests. Any distinguished physician not a resident of this State who is a member of his own State Association may become a guest during any Annual Session on invitation of the officers of this Association, and shall be accorded the privilege of participating in all of the scientific work for that Session.

ARTICLE V—HOUSE OF DELEGATES

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegates elected by the component county societies, (2) the Councilors, and (3), ex-officio, the President and Secretary of this Association.

ARTICLE VI—COUNCIL

The Council shall consist of the Councilors, and the President and Secretary, ex-officio. Besides its duties mentioned in the By-Laws, it shall constitute the Finance Committee of the House of Delegates. A majority of Councilors shall constitute a quorum.

ARTICLE VII—SECTIONS AND DISTRICT SOCIETIES

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component county societies.

ARTICLE VIII—SESSIONS AND MEETINGS

Section 1. The Association shall hold an Annual Session, during which there shall be held daily General Meetings, which shall be open to all registered members, and guests.

Sec. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

ARTICLE IX—OFFICERS

Section 1. The officers of this Association shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and eight Councilors.

Sec. 2. The officers, except the Councilors, shall be elected annually. The President shall appoint the first Councilors, to serve for one year, or until their successors are elected. The terms of the elected Councilors shall be for three years, those first elected serving one, two and three years, as may be arranged. All of these officers shall serve until their successors are elected and installed.

Sec. 3. The officers of this Association shall be elected by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be

Digitized by Google

elected to any such office who is not in attendance upon that Annual Session, and who has not been a member of the Association for the past two years.

ARTICLE X—RECIPROCITY OF MEMBERSHIP WITH OTHER STATE SOCIETIES

In order to broaden professional fellowship this Association is ready to arrange with other State Medical Associations for an interchange of certificates of membership, so that members moving from one state to another may avoid the formality of re-election.

ARTICLE XI—FUNDS AND EXPENSES

Funds shall be raised by an equal per capita assessment on each component society. The amount of the assessment shall be fixed by the House of Delegates, but shall not exceed the sum of $2.00 per capita per annum, except on a four-fifths vote of the Delegates present. Funds may also be raised by voluntary contributions, from the Association's publications, and in any other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray the expenses of the Association, for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Finance Committee before action is taken thereon.

ARTICLE XII—REFERENDUM

Section 1. A General Meeting of the Association may, by a two-thirds vote of the members present, order a general referendum on any question pending before the House of Delegates, and when so ordered the House of Delegates shall submit such question to the members of the Association, who may vote by mail or in person, and, if the members voting shall comprise a majority of all the members of the Association, a majority of such vote shall determine the question and be binding on the House of Delegates.

Sec. 2. The House of Delegates may, by a two-thirds vote of its own members, submit any question before it to a general referendum, as provided in the preceding section, and the result shall be binding on the House of Delegates.

ARTICLE XIII—THE SEAL

The Association shall have a common Seal, with power to break, change or renew the same at pleasure.

ARTICLE XIV—AMENDMENTS

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the Delegates present at any Annual Session, provided that such amendment shall have been presented

Digitized by Google

in open meeting at the previous annual session, and that it shall have been published twice during the year in the bulletin or journal of this Association, or sent officially to each component society at least two months before the meeting at which final action is to be taken.

BY-LAWS

CHAPTER I—MEMBERSHIP

Section 1. The name of a physician on the properly certified roster of members of a component society, which has paid its annual assessment, shall be prima facie evidence of membership in this Association.

Sec. 2. Any person who is under sentence of suspension or expulsion from a component society, or whose name has been dropped from its roll of members, shall not be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take part in any of its proceedings until he has been relieved of such disability.

Sec. 3. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified by reference to the roster of his society, he shall receive a badge, which shall be evidence of his right to all the privileges of membership at that Session. No member shall take part in any of the proceedings of an Annual Session until he has complied with the provisions of this section.

CHAPTER II—ANNUAL AND SPECIAL SESSIONS OF THE ASSOCIATION

Section 1. The Association shall hold an Annual Session at such time and place as has been fixed at the preceding Annual Session by the House of Delegates.

Sec. 2. Special meetings of either the Association or of the House of Delegates shall be called by the President on petition of twenty delegates or fifty members.

CHAPTER III—GENERAL MEETINGS

Section 1. All registered members may attend and participate in the proceedings and discussions of the General Meetings and of the Sections. The General Meetings shall be presided over by the President or by one of the Vice-Presidents, and before them shall be delivered the address of the President and the orations.

Sec. 2. The General Meeting may recommend to the House of Delegates the appointment of committees or commissions for scientific investigation of special interest and importance to the profession and public.

Digitized by Google

CHAPTER IV—HOUSE OF DELEGATES

Section 1. The House of Delegates shall meet at 2 p. m. on the day before that fixed as the first day of the Annual Session. It may adjourn from time to time as may be necessary to complete its business; provided, that its hours shall conflict as little as possible with the General Meetings. The order of business shall be arranged as a separate section of the program.

Sec. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every fifty members, and one for each fraction thereof, but each component society which has made its annual report and paid its assessment as provided in this Constitution and By-Laws, shall be entitled to one delegate.

Sec. 3. Twenty delegates shall constitute a quorum.

Sec. 4. It shall, through its officers, Council and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each Annual Session a stepping stone to future ones of higher interest.

Sec. 5. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

Sec. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse among physicians of the same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

Sec. 7. It shall encourage post-graduate and research work, as well as home study, and shall endeavor to have the results utilized and intelligently discussed in the county societies.

Sec. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body.

Sec. 9. It shall, upon application, provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-Laws.

Sec. 10. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies to be designated by hyphenating the names of two or more counties so

Digitized by Google

as to distinguish them from district and other classes of societies, and these societies, when organized and chartered, shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

Sec. 11. It shall divide the State into Councilor Districts, specifying what counties each district shall include, and, when the best interest of the Association and profession will be promoted thereby, organize in each a district medical society, and all members of component county societies, and no others, shall be members in such district societies. When so organized, from the presidents of such district societies shall be chosen the Vice-Presidents of this Association, and the presidents of the county societies of the district shall be the vice-presidents of such district societies.

Sec. 12. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates. Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

Sec. 13. It shall approve all memorials and resolutions issued in the name of the Association before the same shall become effective.

CHAPTER V—ELECTION OF OFFICERS

Section 1. All elections shall be by ballot, and a majority of the votes cast shall be necessary to elect.

Sec. 2. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General Session.

Sec. 3. Any person known to have solicited votes for or sought any office within the gift of this Association shall be ineligible for any office for two years.

CHAPTER VI—DUTIES OF OFFICERS

Section 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the Councilors in building up the county societies, and in making their work more practical and useful.

Sec. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of the President's death, resignation or removal, the Council shall select one of the Vice-Presidents to succeed him.

Digitized by Google

Sec. 3. The Treasurer shall give bond in the sum of $3,000. The Council shall execute said bond with some indemnity company at the expense of the Association. He shall demand and receive all funds due the Association, together with the bequests and donations. He shall pay money out of the treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands. The amount of his salary shall be fixed by the Council.

Sec. 4. The Secretary shall attend the General Meetings of the Association and the meetings of the House of Delegates, and shall keep minutes of their respective proceedings in separate record books. He shall be ex-officio Secretary of the Council. He shall be custodian of all record books and papers belonging to the Association, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the Annual Sessions. He shall, with the co-operation of the secretaries of the component societies, keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society, and, on request, shall transmit a copy of this list to the American Medical Association. He shall aid the Councilors in the organization and improvement of the county societies and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence notifying members of meetings, officers of their election and committees of their appointment and duties. He shall employ such assistants as may be ordered by the House of Delegates, and shall make an annual report to the House of Delegates. He shall supply each component society with the necessary blanks for making their annual reports; shall keep an account with the component societies, charging against each society its assessment, collect the same, and at once turn it over to the Treasurer. Acting with the Committee on Scientific Work, he shall prepare and issue all programs. The amount of his salary shall be fixed by the Council. The Secretary shall present to the Association on the last day of the General Session, a summary of the proceedings of the Council and the House of Delegates.

CHAPTER VII—COUNCIL

Section 1. The Council shall meet on the day preceding the first General Meeting of the Annual Session and daily during the Session, and at such other times as necessity may require, subject to the call of the chairman, or on petition of three Councilors. It shall meet on the last day of the Annual Session of

Digitized by Google

the Association to organize and outline work for the ensuing year. It shall elect a chairman and a clerk, who, in the absence of the Secretary of the Association, shall keep a record of its proceedings. It shall, through its chairman, make an annual report to the House of Delegates.

Sec. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit the counties in his district at least once a year for the purpose of organizing component societies where none exist; for inquiring into the condition of the profession, and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his work and of the condition of the profession of each county in his district at the Annual Session of the House of Delegates. The necessary traveling expenses incurred by such Council or in the line of the duties herein imposed may be allowed by the House of Delegates on a proper itemized statement, but this shall not be construed to include his expense in attending the Annual Session of the Association.

Sec. 3. The Council shall be the board of censors of the Association. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or component societies on which an appeal is taken from the decision of an individual Councilor, and its decision in all such matters shall be final.

Sec. 4. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies, to be suitably designated so as to distinguish them from district societies, and these societies, when organized and chartered, shall be entitled to all rights and privileges provided for component societies until such counties shall be organized separately.

Sec. 5. The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memoirs of the Association, and shall have authority to appoint an editor and such assistants as it deems necessary. All money received by the Council and its agents, resulting from the discharge of the duties assigned to them, must be paid to the Treasurer of the Association. As the Finance Committee it shall annually audit the accounts of the Treasurer and Secretary and other agents of this Association and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of the Association during the year, and the amount of all other property belonging to the Association under its control, with such suggestions as it may deem

Digitized by Google

necessary. In the event of a vacancy in the office of the Secretary, or the Treasurer, the Council shall fill the vacancy until the next annual election.

CHAPTER VIII—COMMITTEES

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Arrangement, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members, of whom the Secretary shall be one, and shall determine the character and scope of the scientific proceedings of the Association for each session, subject to the instructions of the House of Delegates. Thirty days previous to each Annual Session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented.

Sec. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates it shall represent the Association in securing and enforcing legislation in the interest of publis health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall strive to organize professional influence so as to promote the general good of the community in local, state and national affairs and elections.

Sec. 4. The Committee on Arrangements shall be appointed by the component society of the county in which the Annual Session is to be held. It shall provide suitable accommodations for the meeting-places of the Association and of the House of Delegates, and of their respective committees, and shall have general charge of all the arrangements. Its chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

CHAPTER IX—COUNTY SOCIETIES

Section 1. All county societies now in affiliation with this Association or those which may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, on application, receive a charter from and become a component part of this Association.

Sec. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

Digitized by Google

Sec. 3. Charters shall be issued only upon approval of the Council or House of Delegates and shall be signed by the President and Secretary of this Association. The Council or the House of Delegates shall have authority to revoke the charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Sec. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made, with the aid of the Councilor for the District, if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Sec. 5. Each county society shall judge of the qualifications of its own members, but, as such societies are the only portals to this Association and to the American Medical Association, every reputable and legally registered physician who does not practice or claim to practice, nor lend his support to, any exclusive system of medicine, shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

Sec. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right to appeal to the Council, and its decision shall be final.

Sec. 7. In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a Board and as individual Councilors, in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Sec. 8. When a member in good standing in a component society moves to another county in this State, his name, on request, shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

Sec. 9. A physician living on or near a county line may hold his membership in that county society most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

Sec. 10. Each component society shall have general direction of the affairs of the profession in its county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Digitized by Google

Sec. 11. At some meeting in advance of the Annual Session of this Association, each county society shall elect a delegate or delegates and an alternate or alternates to represent it in the House of Delegates of this Association, in the proportion of one delegate to each fifty members or fraction thereof, and the Secretary of the society shall send a list of such delegates to the Secretary of the Association before April 1st.

Sec. 12. The Secretary of each component society shall keep a roster of its members and of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

Sec. 13. The Secretary of each component society shall forward its assessment, together with its roster of officers and members, list of delegates, and list of non-affiliated physicians of the county to the Secretary of this Association each year before April 1st.

Sec. 14. Any county society which fails to pay its assessment or make the report required, on or before April 1st, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Association or of the House of Delegates until such requirements have been met.

CHAPTER X—MISCELLANEOUS

Section 1. No address or paper before the Association, except those of the President and orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject except by unanimous consent.

Sec. 2. All papers read before the Association or any of the Sections shall become its property. Each paper shall be deposited with the Secretary when read.

Sec. 3. The deliberations of this Association shall be governed by parliamentary usage as contained in Roberts' Rules of Order, when not in conflict with this Constitution and By-Laws.

Sec. 4. The Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

CHAPTER XI—AMENDMENTS

These By-Laws may be amended at any Annual Session by a majority vote of all the delegates present at that session, after the amendment has laid on the table for one day.

Digitized by Google

Roster

Abbott, A. W.....Minneapolis
Abbott, E. J.....St. Paul
Aborn, Wm. H.....Hawley
Adair, John H.....Owatonna
Adams, B. S.....Hibbing
Adams, J. C.....Lake City
Adams, W. T.....Elgin
Adsit, A. M.....Hastings
Aitkin, H. B.....Le Sueur Center
Aldrich, A. G.....Minneapolis
Alexander, F. H.....Barnesville
Aling, C. P.....Minneapolis
Allen, A. W.....Austin
Allen, Frank H.....Staples
Allen, H. B.....Cloquet
Allen, Mason .....St. Paul
Ancker, A. B.....St. Paul
Anderson, A. E.....Minneapolis
Anderson, C. A.....Rush City
Anderson, J. D.....Minneapolis
Anderson, J. V.....Red Wing
Andrews, J. W.....Mankato
Andrist, James W.....Ellendale
Appleby, E. V.....St. Paul
Archibald, F. M.....Atwater
Archibald, O. W.....St. Paul
Armstrong, J. M.....St. Paul
Armstrong, L. W.....Breckenridge
Artz, C. P.....St. Paul
Aurand, W. H.....Minneapolis
Aurness, P. A.....Minneapolis
Avery, J. F.....Aitkin
Awty, W. J.....Moorhead
Aylmer, A. L.....Minneapolis

Babcock, L. W.....Wadena
Bacon, C. G.....Marshall
Bacon, Knox .....St. Paul
Bacon, L. C.....St. Paul
Bacon, R. S.....Montevideo
Bagley, W. R.....Duluth
Baier, Florence C.....Minneapolis
Baker, A. C.....Fergus Falls
Baker, A. L.....Kasson
Bakke, Ole H.....Blooming Prairie
Ball, C. R.....St. Paul
Barber, J. P.....Minneapolis
Barnum, E. E.....Pine City
Barrett, E. E.....Glencoe
Barsness, Nellie .....St. Paul
Bartelson, O. L.....Crookston
Bartlett, C. K.....Minneapolis
Barton, E. R.....Frazee
Barton, G. C.....Minneapolis
Bass, G. W.....Minneapolis
Batchelder, E. J.....New Richland
Batcheller, Oliver T.....Brainerd
Baxter, S. H.....Minneapolis
Bayley, Edmund .....New Ulm
Bayley, E. H.....Lake City
Beadle, W. D.....Windom
Beard, R. O.....Minneapolis
Beckman, E. H.....Minneapolis
Beebe, Warren L.....St. Cloud
Behrens, B. M.....Minneapolis
Beise, R. A.....Brainerd
Belcourt, O. E.....Argyle
Bell, J. W.....Minneapolis
Belsheim, A. G.....Aitkin
Bendeke, Karl .....Minneapolis
Benepe, L. M.....St. Paul
Benham, E. W.....Amboy
Benjamin, A. E.....Minneapolis
Bennett, O. E.....Sanborn
Bennion, P. H.....Windom
Bergquist, K. E.....Henning
Berthold, J. L.....Perham
Bertelson, O. L.....Crookston
Bessessen, A. N.....Minneapolis
Bettingen, J. W.....St. Paul
Bevans, T. F.....Morris
Bice, C. W.....Ruthton
Bickford, F. J.....Milroy
Bigelow, Edward E.....Owatonna
Binder, Geo. A.....St. Paul
Biorn, N. A.....Ada
Bishop, C. W.....Minneapolis
Bisjord, J. N.....Fertile
Bjelland, A. O.....Mankato
Blair, Paul B.....Winona
Blake, James .....Hopkins
Blanchard, H. G.....Waseca
Blomburgh, A. F.....St. Hilaire
Bloom, Wm. D.....Minneapolis
Boeckmann, E.....St. Paul
Boehm, J. C.....St. Cloud
Bole, R. S.....St. Paul

Digitized by Google

Boleyn, E. S.....Stillwater
Bolles, D. W.....Brownton
Bolsta, Chas.....Ortonville
Bomberger, F. J.....Mapleton
Bond, J. F.....Wabasha
Bouman, H. A.....Minneapolis
Boyd, C. A.....Lewiston
Boyd, H. J.....Alexandria
Bracken, H. M.....St. Paul
Braden, A. J.....Duluth
Bradley, C. H.....Minneapolis
Bratrud, Theodore .....Warren
Brigham, G. S.....St. Cloud
Brimhall, J. B.....St. Paul
Brown, E. I.....St. Paul
Brown, E. J.....Minneapolis
Brown, Harry .....Rolling Stone
Brown, John B.....Farley
Brown, Le Roy.....St. Paul
Brown, R. S.....Minneapolis
Browning, W. E.....Caledonia
Brubaker, E. E..... Northfield
Brunelle, A. M.....Cloquet
Buckley, E. W.....St. Paul
Budd, J. D.....Two Harbors
Bullen, J. W.....Eveleth
Burch, F. E.....Glencoe
Burns, M. A.....Milan
Burton, C. N.....Elmore
Burton, O. A.....Albert Lea
Bushey, M. E.....Arlington
Byrnes, W. J.....Minneapolis

Caine, C. E.....Morris
Cameron, William G.....Staples
Camp, James L.....Brainerd
Carlaw, C. M.....Minneapolis
Carman, J. B.....Detroit
Carr, Ezra M.....Pipestone
Cassell, H. E.....Litchfield
Cates, A. B.....Minneapolis
Catlin, John J.....Missoula, Mont.
Catlin, T. J.....Delano, Minn
Cavanaugh, J. O..... St. Paul
Chamberlin, J. W.....St. Paul
Chamberlin, W. A.....Waseca
Chance, J. P.....Royalton
Chance, Norman W....Little Falls
Chapin, J. S.....Euclid
Chapman, O. S.....Minneapolis
Chapman, T. L.....Duluth
Chapman, W. E.....Litchfield
Chilgren, G. A.....Sauk Rapids
Chilton, E. Y.....Howard Lake
Chowning, W. M.....Minneapolis
Christenson, C. R.....Starbuck
Christie, George R....Long Prairie
Christison, J. T.....St. Paul
Cirklen, A. A.....Minneapolis
Clark, A. H.....Worthington
Clark, C. L.....White Bear Lake
Clark, C. N.....St. Charles
Clark, H. S.....Glencoe
Clark, T. C.....Stillwater
Clay, E. M.....Renville
Clement, Jno. B.....Lester Prairie
Clement, L. O.....Lamberton
Cobb, W. F.....Lyle
Cochrane, W. J.....Lake City
Cockburn, J. C.....Minneapolis
Cohen, H. A.....Minneapolis
Cole, Herman B.....Franklin
Collins, H..... .Duluth
Colvin, A. R.....St. Paul
Condit, W. H.....Minneapolis
Conley, A. T.....Cannon Falls
Cook, Paul B.....St. Paul
Cooke, W. H.....Minneapolis
Cool, D. M.....Faribault
Cooley, C. O.....Madelia
Coon, Geo. M.....St. Paul
Corbett, J. F.....Minneapolis
Cosmann, E. O.....Minneapolis
Coulter, Chas. F.....Wadena
Course, Chas.....Verndale
Courtney, Walter .....Brainerd
Coventry, W. A.....Duluth
Cowan, D. W.....Sandstone
Cowing, Phil. G.....Ashby
Cowles, D. C.....Minneapolis
Cox, A. J.....Tyler
Cressey, F. J.....Granite Falls
Crosby, J. A.....Minneapolis
Cross, Jno. G.....Minneapolis
Crowe, J. M.....Virginia
Crume, Geo. P.....Minneapolis
Cuff, Wm. S.....St. Paul
Cummings, D. S.....Waseca
Cummings, J. C.....St. Hilaire
Curran, G. R.....Mankato
Cutler, Chas. F.....Park Rapids
Cutts, G. A. C.....Grove City

Daignault, Oscar .....Benson
Dampier, C. E.....Crookston
Daniels, J. W.....St. Peter
Darling, W. H.....St. Peter
Darrow, Daniel C.....Moorhead
Dart, L. O.....Minneapolis
Davis, A. M.....Akeley
Davis, E. J.....Mankato
Davis, F. U.....St. Clair
Davis, F. W.....Adams
Davis, H. S.....Duluth

Digitized by Google

Davis, H. W.....St. Paul
Davis, J. P.....Hammond
Davis, L. A.....Dalton
Davis, William .....St. Paul
Day, L. W.....Minneapolis
Dearborn, B.....Minneapolis
De la Barre, Wm.....Minneapolis
Dennis, W. A.....St. Paul
Denniston, C. H.....Crookston
Denny, C. F.....St. Paul
Deziel, G.....Minneapolis
Dimmitt, F. W.....Red Wing
Disen, C. F.....Minneapolis
Dodge, A. A.....Faribault
Dodge Franklin A.....Le Sueur
Dodge, W. M.....Farmington
Dohm, C. L.....St. Paul
Donaldson, C. A.....Minneapolis
Donnelson, K. A.....Twin Valley
Dorsey, John H.....Glencoe
Doyle, J. W.....Minneapolis
Drake, F. A.....Lanesboro
Dredge, H. P.....Sandstone
Drenning, F. C.....Duluth
Driesbach, N.....Minneapolis
DuBois, Julian A.....Sauk Center
Dugan, R. C.....Eyota
Dumas, C. H.....Minneapolis
Duncan, Henry .....Marietta
Duncan, W. T.....Fergus Falls
Dunlop, A. H.....Crookston
Dunn, John B.....St. Cloud
*Dunn, J. H.....Minneapolis
Dunning, A. W.....St. Paul
Dunsmoor, F. A.....Minneapolis
Dutton, C. E.....Minneapolis

Earl, Robert O.....St. Paul
Eberlin, E. A.....Glenwood
Edmunds, I. L.....St.Cloud
Edwards, J. M.....Mankato
Egge, T. S.....Moorhead
Eisengraeber, G. A..Young America
Eitel, Geo. G.....Minneapolis
Erb, Frederick A.....Minneapolis
Erdman, C. A.....Minneapolis
Eshelby, E. C.....St. Paul
Estabrook, E. L.....Minneapolis
Eustis, Warren C.....Owatonna
Farley, F. X.....Crookston
Farmer, J. C.....McKinley
Farmer, S. S.....Beltrami
Farr, R. E.....Minneapolis

Ferguson, J. C.....St. Paul
Ferree, George P..New Paynesville

*Deceased.

Fiester, Fannie K.....Austin
Fischer, Gustave .....Minneapolis
Fischer, O. F.....Houston
Fitch, Julius C.....Hastings
Fjelstad, C. A.....Glenwood
Flagg, S. D.....St. Paul
Fleming, A. S.....Wheaton
Fliesburg, O. A.....Minneapolis
Flower, Ward Z.....Gibbon
Flynn, J. P.....Madelia
Force, J. F.....Minneapolis
Fortier, Geo. M. A.....Little Falls
Foster, Burnside .....St. Paul
Foster, N. W.....St. Paul
Francis, Thos. B.....Edgerton
Franklin, A. J.....Blue Earth City
Frazer, W. A.....Lyle
Freeborn, J. A.....Fergus Falls
Freeman, W. W.....Grand Meadow
Freligh, E. O'B.....Stillwater
French, E. A.....Ortonville
Frisbie, Wm.....Mankato
Froshaugh, S. J.....Hills
Frost, E. H.....Willmar
Fullerton, Ellen C.....Minneapolis
Fullerton, W. S.....St. Paul
Fulton, J. F.....St. Paul

Gag, E. W.....Wabasso
Gambell, S. H....Thief River Falls
Gammell, H. W.....Madison
Gates, G. L.....Winona
Gauthier, W. L.....Stillwater
Geer, E. F.....St. Paul
Gemmel, J. E.....Rush City
Germain, R. T.....Barnesville
Germo, Chas.....Balaton
Geyerman, P. G.....Brewster
Giere, E. O.....Madison
Gilfillan, J. S.....St. Paul
Gillette, A. J.....St. Paul
Gilmore, R. T.....Bemidji
Golberg, M. L.....Twin Valley
Goodrich, Judd .....St. Paul
Gordon, Geo. J.....Minneapolis
Gould, J. B.....Minneapolis
Gowdy, F. A.....Harmony
Graham, B. F.....Minneapolis
Graham, C.....Rochester
Graham, D.....Duluth
Graham, R.....Duluth
Granger, Chas. T.....Rochester
Granger, Gertrude Booker.Rochester
Gravelle, J. M. A.....St. Paul
Gray, G. W.....Brownsdale
Greaves, Wm.....Northfield
Greeley, L. A.....Duluth

Digitized by Google

Green, C. A.....Windom
Green, E. K.....Minneapolis
Greene, C. L.....St. Paul
Grinnell, W. B.....Preston
Grivelli, C. T.....Young America
Gronerud, Aug.....Kennedy
Gronvold, F. O.....Gary
Groves, A. F.....Brainerd
Grundy, H.....Thief River Falls
Gryttenholm, K.....Zumbrota
Gulick, W. V.....Oronoco
Gunz, A. N.....Centre City

Haas, C. A.....St. Paul
Hack, C. W.....Minneapolis
Hacking, F. H.....Granite Falls
Haggard, G. D.....Minneapolis
Haines, J. H.....Stillwater
Hall, A. R.....St. Paul
Hall, Charlotte .....St. Paul
Hall, W. A.....Minneapolis
Hanson, M.....Hendrum
Hare, E. R.....Minneapolis
Harrah, J. W.....Minneapolis
Hart, A. B.....Canton
Hart, M. J.....Le Roy
Hartzell, Thos. B.....Minneapolis
Harwood, W. E.....Eveleth
Haskell, A. D.....South Haven
Hatch, Theodore L.....Owatonna
Haugan, O. M.....Fergus Falls
Hawkins, E. P.....Montrose
Hawkins, V. J.....St. Paul
Haynes, F. E.....Minneapolis
Head, Geo. D.....Minneapolis
Heath, A. C.....St. Paul
Hegge, C. A.....Austin
Hegge, O. H.....Austin
Heimark, O. E.....Hawley
Heise, W. F. C.....Winona
Hemstead, Werner .....Brainerd
Henderson, A.....St. Paul
Hendrickson, H. W.....Montevideo
Hennings, A. J.....Hardwick
Hensel, E. A.....Alexandria
Henslin, A. E.....LeRoy
Hering, H. H.....Lake Crystal
Hertzman, C. O.....Lindstrom
Hesselgrave, S. S.....St. Paul
Hewitt, C. N.....Red Wing
Hielscher, J. A.....Mankato
Higgins, J. H.....Rockford
Hilbert, Pierre A.....Melrose
Hildebrandt, E.....Forest City
Hill, A. L.....Monticello
Hill, R. J.....Minneapolis
Hirschfield, Adolph.....Minneapolis
Hodgson, H. H.....Fisher
Hoegh, Knut .....Minneapolis
Hoff, Peder A.....St. Paul
Hogen, H. O.....New Richland
Hoit, Edward E.....Detroit
Holbrook, J. S.....Mankato
Holdridge, Geo. A.....Foley
Hollister, W. L.....Austin
Holman, C. J.....Mankato
Holte, H.....Crookston
Hopkins, M. P.....St. Peter
Hovorka, Thos. W.....Silver Lake
Hubert, R. I.....St. Cloud
Hughes, Helen .....Mankato
Hughes, Jane .....Mankato
Hulburd, H. L.....Morris
Humphrey, W. R..South Stillwater
Hunt, F. N.....Blue Earth City
Hunt, H. E.....St. Paul
Hunt, W. A.....Northfield
Hunte, A. F.....Truman
Hunter, C. H.....Minneapolis
Huntoon, A. F.....Duluth
Hutchins, E. A.....Minneapolis
Huxley, F. R.....Faribault
Hyde, Leon W.....Moorhead
Hvoslef, Jakob .....Minneapolis
Hynes, James .....Minneapolis

Ingraham, Elizabeth...Minneapolis
Irwin, A. F.....Minneapolis

Jacobs, A. C.....Elmore
Jaehnig, B.....Red Wing
James, J. H.....Mankato
James, P. E.....Hutchinson
Jenckes, H. D.....Pipestone
Jensen, T.....Spring Grove
Jewell, E. L.....Pine Island
Johnson, Asa .....St. Paul
Johnson, A. E.....Cloquet
Johnson, A. Einar.....Madison
Johnson, Christian .....Willmar
Johnson, C. E.....Clinton
Johnson, C. H.....Austin
Johnson, H. C.....St. Paul
Johnson, H. M.....Dawson
Jones, A. W.....Red Wing
Jones, D. N.....Gaylord
Jones, Herbert W.....Minneapolis
Jones, S. S.....Frazee
Jones, Talbot .....St. Paul
Jones, W. A.....Minneapolis
Judd, E. S.....Rochester

Kaess, A. J.....Ortonville
Kahala, Arthur .....St. Paul
Kannary, E. L.....St. Paul

Digitized by Google

Kanne, C. W.....Arlington
Karn, J.....Ortonville
Kauffman, J. H.....Dassel
Keam, A. P.....St. Paul
Keene, R. K.....Bellingham
Kelly, E. S.....Minneapolis
Kelley, W. D.....St. Paul
Kelsey, C. A.....Minneapolis
Kendrick, W. N.....Austin
Kennedy, Jane .....Minneapolis
Kenyon, Paul C.....Wadena
Keyes, C. R.....Duluth
Keyes, E. D.....Winona
Kilbride, J. S.....Canby
Kimball, H. H.....Minneapolis
King, Emil .....Fulda
Kirk, D. A.....Le Sueur
Kirkwood, S. M.....St. Paul
Kistler, A. S.....St. Paul
Kistler, C. M.....Minneapolis
Kistler, J. M.....Minneapolis
Kittleson, Thos. M....Fergus Falls
Kjelland, J. S.....Crookston
Knauff, M. K.....Two Harbors
Knickerbocker, Frank H....Staples
Knights, F. A.....Minneapolis
Knudson, B. C.....Tyler
Kock, John C....Thief River Falls
Kohler, Fred.....Stewart
Kriedt, Dan'l .....Minneapolis
Krueger, L. W.....Mapleton.

La Clerc, Joseph E.....Le Sueur
Laliberte, Thos.....Minneapolis
Lamb, Harold L.....Sauk Center
Lamb, J. L.....Browns Valley
Landeen, F. G.....Stillwater
Landenberger, John....New Prague
Lando, D. H.....St. Paul
Lane, N. S.....Winona
Lankester, Howard .....St. Paul
Lapierre, C. A.....Minneapolis
Larsen, A. D.....Herman
Laton, W. S.....Minneapolis
Law, A. A.....Minneapolis
Laws, F.....Minneapolis
Leavitt, F. E.....St. Paul
Leck, C. C.....Austin
Lee, C. E.....St. Paul
Lee, Thos. G.....Minneapolis
Lee, Wm. P.....Fairfax
Leicht, Oswald .....Winona
Leland, H. N.....Minneapolis
Lemieaux, Israel...Red Lake Falls
Leudtke, G. H.....Fairmont
Leuty, Amos .....Morris
Lewis, C. F.....Austin
Lewis, Edwin J.....Sauk Center
Lewis, J. D.....St. Paul
Lewis, J. M.....Minneapolis
Lewis, W. W.....St. Paul
Lichtenstein, H. M.....Winona
Liedloff, A. G.....Mankato
Lind, A.....Minneapolis
Lind, C. J.....Minneapolis
Linjer, O. E.....Minneapolis
Linton, W. B.....Minneapolis
Little, J. W.....Minneapolis
Litzenberg, J. C.....Minneapolis
Livingstone, J. L....Pelican Rapids
Loberg, A. E.....Minneapolis
Lockwood, M. M.....Hallock
Lockwood, S. O.....Minneapolis
Lommen, A. P.....Lanesboro
Long, Jesse .....Minneapolis
Longford, J. J.....Green Island
Lord, B. E.....Henderson
Lowthane, G. H.....Hewitt
Lum, C. E.....Duluth
Lumley, W. A.....Renville
Lundgren, C. E.....North Branch
Lundholm, E. M.....St. Paul
Luther, Clara M.....Minneapolis
Lyman, F.....Duluth
Lynch, J. L.....Winona
Lynch, R. F.....Monticello
Lyng, John A.....Alexandria
Lynn, J. F.....Waseca
Lyons, A.....Pine City

McCarthy, W. J.....Madelia
McCloud, C. N.....St. Paul
McClung, Alberta V.....Corning, Cal.
McCollom, C. A.....Minneapolis
McComb, C. F.....Duluth
McCord, E. W.....St. Paul
McCuen, J. A.....Duluth
McDaniel, Oriana .....Minneapolis
McDavitt, Thos.....St. Paul
McDonald, H. N.....Minneapolis
McDonald, I. C.....Minneapolis
McGuigan, Henry .....Mazeppa
McDougald, D. W.....Minneapolis
McEachren, A.....McIntosh
McGaughey, H. F.....Winona
McGaughey, J. B.....Winona
McGillivary, Wm.....Pipestone
McIntyre, E. H.....Minneapolis
McKeon, Owen .....St. Michael
McKey, T. F.....Albert Lea
McKinnon, J. J.....Wadena
McKinnon, M.....Fosston
McKinstry, H. L.....Red Wing
McLaren, Jeanette .....St. Paul

Digitized by Google

McLean, T. N.....Fergus Falls
McMasters, James M..Sauk Center
McMichael, O. H.....Vernon Center
McMurdy, R. S.....Minneapolis
MacMurphy, Geo.....Ortonville
MacNamara, J. G.....St. Paul
Macdonald, A.....Morristown
Macdonald, Angus .....St. Paul
Macdonald, J. W.....Minneapolis
MacKenzie, L. F.....Villard
MacLaren, Archibald .....St. Paul
Maercklein, C. J.....Le Roy
Maercklein, O. C.....Adams
Magie, W. H.....Duluth
Magnusson, H. V.....Clinton
Malchow, C. W.....Minneapolis
Maloy, Geo. E.....St. Cloud
Mann, A. T.....Minneapolis
Manson, F. M.....Worthington
Maris, Emily .....Duluth
Markoe, J. C.....St. Paul
Mathieson, A. B.....Evansville
May, C. C.....Adrian
Mayland, M. L.....Faribault
Mayo, C. H.....Rochester
Mayo, W. J.....Rochester
Mayo, W. W.....Rochester
Mead, C. J.....St. Paul
Mead, Marion A.....Minneapolis
Meckstroth, C. W.....Brandon
Mee, P. H.....Gaylord
Meek, S. J.....Winsted
Melby, Benedick .....Hayfield
Melby, O. F.....Warren
Merrill, B. J.....Stillwater
Merrill, J. E.....Amboy
Merritt, Geo. F.....St. Peter
Mesker, G. H.....Olivia
Miller, A. W.....St. Paul
Miller, C. C.....St. Paul
Miller, Victor I.....Westbrook
Millet, M. C.....Rochester
Milligan, W. F.....Wabasha
Millspaugh, J. G.....Little Falls
Mintener, J. W.....Minneapolis
Mitchell, F.....Euclid
Mitchell, L. C.....Minneapolis
Moen, J. K.....Windom
Monahan, J. A.....Minneapolis
Moore, J. E.....Minneapolis
Moore, J. T.....Minneapolis
Moore, W. J.....Wood Lake
Moorehead, Martha B..Minneapolis
More, C. W.....Eveleth
Morell, Harry .....Litchfield
Morley, G. A.....Crookston
Morrison, William R.....Bemidji
Morton, H. McI.....Minneapolis
Mosse, F. R.....Rochester
Mowers, S. W.....Brainerd
Muir, Edwin S.....Winona
Muir, James B.....Hallock
Munger, L. H.....Winona
Munger, P. H.....Nicollet
Murdock, A. J.....Minneapolis
Murdock, H. G.....Taylors Falls
Murphy, W. B.....Minneapolis
Murray, Wm. R.....Minneapolis

Nannestad, J. R.....Bricelyn
Nelson, A.....Fertile
Nelson, C. P.....Westbrook
Nelson, H. S.....Minneapolis
Nelson, J. C.....St. Paul
Nelson, L. A.....St. Paul
Nelson, N. A.....Dawson
Neraal, P. O.....McIntosh
Newhart, Horace .....Minneapolis
Newman, G. A.....New London
Nichols, A. B.....St. Paul
Nicholson, D. A.....St. Peter
Nicholson, Jas.....Brainerd
Nippert, H. T.....St. Paul
Nippert, L. A.....Minneapolis
Nootnagle, Chas.....Minneapolis
Norin, Frank L.....Roseau
Norton, H. G.....St. Paul
Noth, Henry W.....Marine Mills
Nuckolls, G. W.....Tintah
Nye, W. F.....Minneapolis

O'Brien, H. J.....St. Paul
O'Connor, D. F.....St. James
O'Connor, J. P.....Delano
O'Connor, J. V.....St. Paul
O'Hair, P.....Waverly
O'Hara, J. J.....Alma City
Odendahl, F. H.....St. Paul
Ohage, J.....St. Paul
Ohnstad, J.....McIntosh
Oliver, C. I.....Graceville
Olsen, O. R.....St. Charles
Olson, O. A.....Minneapolis
Olson, O. H.....Erskine
Onsgard, L. K.....Houston
Orton, H. N.....Minneapolis
Osborn, Lida .....Mankato

Pare, L. F.....Duluth
Parker, E. H.....Minneapolis
Parker, H. G.....Madison Lake
Parrott, W. B.....Long Prairie
Patterson, F. D.....Lambert
Patton, F. J.....Duluth
Pease, Giles P.....Redwood Falls

Digitized by Google

Penhall, F. W.....Morton
Persons, C. E.....Marshall
Peters, R. M.....Minneapolis
Phelps, R. M.....Rochester
Phillips, Edwin .....Minneapolis
Phillips, J. R.....Northfield
Phillips, W. H.....Jordan
Pierson, H. F.....Austin
Pilon, Pierre C....New Paynesville
Pine, A. A.....St. Paul
Pine, O. S.....St. Paul
Pineo, W. B.....Minneapolis
Platt, J. J.....St. Paul
Plondke, F. J.....St. Paul
Plummer, G. A.....Granger
Plummer, H. S.....Rochester
Poehler, F. T.....Minneapolis
Polk, Wm. R.....Minneapolis
Pool, Daniel .....St. Paul
Powell, C. B.....Monticello
Pratt, W. H.....Stillwater
Pringle, A. F.....Northfield
Pritchard, D. B.....Winona
Putman, Catherine E...Minneapolis
Putney, Geo. E....New Paynesville

Quinby, Thos. F.....Minneapolis
Quinn, J. A.....St. Paul
Quitmeyer, O. C....Parkers Prairie

Rae, D. F.....Fergus Falls
Rains, J. M.....Willmar
Ramsey, W. R.....St. Paul
Randall, B. M.....Graceville
Ravich, Simon .....St. Paul
Read, Harry .....Minneapolis
Reay, G. R.....Hokah
Rees, S. P.....Minneapolis
Regner, J. A.....Alexandria
Reineke, G. F.....New Ulm
Reiter, H. W.....Shakopee
Renz, G. A.....St. Paul
Richards, H. R.....Little Falls
Ridgway, A. M.....Annandale
Riggs, C. E.....St. Paul
Ringnell, C. J.....Minneapolis
Rishmiller, J. H.....Minneapolis
Risjord, J. W.....Fertile
Ritchie, H. P.....St. Paul
Ritchie, Parks .....St. Paul
Robbins, C. P.....Winona
Roberts, Cora B.....Minneapolis
Roberts, L. M.....Little Falls
Roberts, Thos. S.....Minneapolis
Robertson, J. W.....Litchfield
Robillard, W. H.....Faribault
Robinson, J. M.....Duluth
Rochford, W. E.....Minneapolis
Rodger, E. H. Washburn....Austin
Rodli, O. E.....Albert Lea
Rogers, A. C.....Faribault
Rogers, C. E.....Montevideo
Rogers, G. M. F.....Buffalo
Rogers, Jno. J.....Minneapolis
Rogers, J. T.....St. Paul
Rollins, F. H.....St. Charles
Rood, D. C.....Hibbing
Rose, F. M.....Faribault
Rothenberg, J. C.....Springfield
Rothrock, J. L.....St. Paul
Rounds, V. F.....Brainerd
Rowe, W. H.....St. James
Roy, Philemon .....St. Paul
Rudwell, Thomas F.....Cass Lake
Rullen, Frank W.....Currie
Rumpf, W. H.....Faribault
Rutledge, J. W.....Minneapolis
Ryan, E. P.....Stillwater
Ryan, Margaret .....St. Paul

Sanford, Jas.....New Market
Savage, Francis J.... .....St. Paul
Sawyer, H. P.....Goodhue
Schadle, J. E.....St. Paul
Schefcik, John F.....Hutchinson
Schjelderup, N. H....Granite Falls
Schlegel, H. E.....Redwood Falls
Schmauss, F. L.....Mankato
Schmitt, S. C.....Blue Earth City
Schneider, H. A.....Jordan
Schoch, J. L.....New Ulm
Schocht, Fred E.....Fergus Falls
Schottler, G. J.....Dexter
Schrader, J. S.....Springfield
Schultz, F. W.....Waltham
Schulze, Geo.....Owatonna
Schwyzer, Arnold .....St. Paul
Schwyzer, G.....Minneapolis
Scofield, C. L.....Benson
Scott, J. W.....St. Charles
Searles, S. S.....Lakefield
Seashore, D. E... ....Battle Lake
Seashore, Gilbert .....Minneapolis
Seguin, Edwin .....Buckman
Senkler, Geo. E.....St. Paul
Serkland, J. C.....Rothsay
Sessions, J. C.....Minneapolis
Shaleen, Arthur W.....Hallock
Shannon, E. A.....Buffalo
Shaw, A. W.....Buhl
Shelden, W. D.....Minneapolis
Sheppard, Fred.....Hutchinson
Sheppard, P. E.....Hutchinson
Sherping, O. Th.....Fergus Falls
Sherwood, Geo. E.....Kimball

Digitized by Google

Shimonek, Anton .....St. Paul
Shrader, E. E.....Watertown
Simpson, Chas.....Minneapolis
Simon, B. F.....St. Paul
Simpson, J. D.....Minneapolis
Skinner, Geo. A. Ft. Harrison, Mont.
Slagle, C. G.....Minneapolis
Slippern, H.....Fosston
Slocumb, J. A.....Plainview
Smith, C. A.....Minneapolis
Smith, D. D.....Mankato
Smith, D. E.....Minneapolis
Smith, H. W.....Crookston
Smith, L. G.....Foxhome
Smith, P. A.....Faribault
Sneve, Haldor .....St. Paul
Soderlind, A.....Minneapolis
Sohlberg, O.....St. Paul
Spalding, A. E.....Luverné
Spratt, C. J.....Minneapolis
Spratt, C. N.....Minneapolis
Spring, W. P.....Minneapolis
Stamm, G.....St. Paul
*Staples, Franklin .....Winona
Staples, H. L.....Minneapolis
Steel, E. D.....Mankato
Steinbach, John.....Winona
Stemsrud, A. A.....Dawson
Stephan, E. L.....Hinckley
Sternberg, Oscar .....North Branch
Stevens, Edmund .....St. Paul
Stevens, F. A.....Lake Elmo
Stevenson, Geo. A.....Albert Lea
Stewart, Allan B.....Owatonna
Stewart, C. A.....Duluth
Stewart, D. A.....Winona
Stewart, J. Clark.....Minneapolis
Stierle, Adolph, Jr....Two Harbors
Stinchfield, A. W.....Rochester
Stoddard, A. G.....Fairfax
Stone, A. J.....St. Paul
Stone, W. T.....Park Rapids
Stowe, A. J.....Rush City
Strathern, F. P.....St. Peter
Stratton, W. M.....Granite Falls
Straub, C. O.....Minneapolis
Strech, E. D.....Duluth
Strickler, O. C.....New Ulm
Strout, E. S.....Minneapolis
Strout, G. E.....Winthrop
Stuart, J. H.....Minneapolis
Stuhr, H. C.....Argyle
Sullivan, M.....Adrian
Sullivan, Thos.....Springfield
Swarthout, Ellis .....Goodhue
Swartwood, F. A.....Waseca
Swartz, W. J.....Forest Lake
Sweeney, Arthur .....St. Paul
Sweetser, H. B.....Minneapolis
Sweney, C. F.....St. Paul

Taustrom, Ingeborg .....Harris
Taylor, A. C.....Duluth
Taylor, H. L.....St. Paul
Taylor, M. J.....Janesville
Taylor, Wm. J.....Pipestone
Tessler, M.....St. Paul
Thabes, J. A.....Brainerd
Thomas, D. O.....Minneapolis
Thomas, Geo. H.....Minneapolis
Thomas, O. F.....Lakeland
Thordarson, Th.....Minneota
Thorkelsen, Thorvald...Minneapolis
Thorson, Th. N.....Benson
Thrane, M.....Madison
Tibbetts, J. I.....Wayzata
Tingdale, A. C.....Minneapolis
Tinker, C. W.....Stewart
Titcomb, J. D.....Duluth
Titus, J. H.....Sacred Heart
Todd, F. C.....Minneapolis
Todd, W. E.....Albert Lea
Tomlinson, H. A.....St. Peter
Torgerson, W. B.....Clarkfield
Towers, F. E.....Minneapolis
Towers, Mary E.....Minneapolis
Trace, O. C.....Little Falls
Tupper, Geo.....Thief River Falls
Tupper, W. G. W.....Minneapolis
Tweedy, G. J.....Winona
Twiford, William H.....Owatonna

Ulrich, Henry L.....Minneapolis

Valentine, W. H.....Tracy
Valin, H. D.....St. Peter
Van Beeck, G. C.....Hastings
Van Cappellen, Chas.....Hastings
Van Cleve, Samuel H...Minneapolis
Van Slyke, C. A.....St. Paul
Van Slyke, F. W.....St. Paul
Van Valkenberg, B. F.....
.....Long Prairie
VanderHorck, M. P....Minneapolis
*Vernon, H. S.....Rushford
Vibrance, C. G.....Watkins
Vieregge, J. A.....St. Paul
Vigen, J. G.....Fergus Falls
Vistaunet, P. L...Thief River Falls
Vittum, W. H.....St. Paul

*Deceased.

*Deceased.

Digitized by Google

Vogel, J. H.....New Ulm
Voigt, W. C.....Stillwater
Vollmer, Jos.....Hutchinson
Von Berg, J. P.....Albert Lea

Wakefield, Wm.....Lake Benton
Walker, A. E.....Duluth
Walrath, Belle.....St. Paul
Walsh, E. F.....St. Paul
Wang, A. M.....Minneapolis
Wanous, E. L.....Minneapolis
Warham, T. T.....Vernon Center
Warne, E. G.....St. Paul
Warren, F. S.....Faribault
Waste, J. P.....Plainview
Watier, G. N.....Stillwater
Watson, Charles W.....Boyd
Watson, Jno.....Hopkins
Watson, J. A.....Minneapolis
Watson, N. M.....Red Lake Falls
Wattam, G. S.....Warren
Webster, I. D.....Mankato
Weeks, L. C.....Detroit
Weiser, F. R.....Windom
Weiser, G. B.....New Ulm
Weisman, R. L.....Pine City
Welcome, J. W. B., Jr...Sleepy Eye
Welcome, J. W. B., Sr...Sleepy Eye
Wellner, C. G.....Red Wing
Wells, E. E.....Stillwater
Werner, O. S.....Lindstrom
Wesbrook, F. F.....Minneapolis
Weston, C. G.....Minneapolis
Weyrens, P. J.....Ivanhoe
Wheat, F. C.....Ellsworth
Wheaton, C. A.....St. Paul
Whipple, C. D.....Minneapolis
Whitacre, J. C.....St. Paul
Whitcomb, E. H.....St. Paul
White, J. B.....Faribault
White, S. M.....Minneapolis
Whiting, Arthur D.....St. Cloud
Whitman, A. F.....St. Paul
Whitney, A. W.....St. Paul
Wier, J. D.....Beardsley
Wilcox, Archa E.....Minneapolis
Wilcox, F. L.....Walker
Wilcox, H. H.....Albert Lea
Wilcox, M. R.....Minneapolis
Wilcox Van H.....Minneapolis
Wilkinson, John Clinton.....
.....Red Lake Falls
Williams, C.....St. Paul
Williams, C. W.....Minneapolis
Williams, H. L.....Minneapolis
Williams, Jno.....Lake Crystal
Williams, Robt.....Alden
Williams, U. G.....Minneapolis
Wilson, L. B.....Minneapolis
Wilson, W.....Northfield
Wilson, W. F.....Lake City
Wimer, T. H.....Marshall
Witherstine, H. H.....Rochester
Wolner, O. H.....St. Cloud
Wood, E. S.....St. Paul
Wood, D. F.....Hanska
Wood, William S..Blooming Prairie
Woodard, F. R.....Minneapolis
Woodruff, C. N.....Wyckoff
Woodworth, Elizabeth..Minneapolis
Workman, H. M.....Tracy
Wright, C. B.....Minneapolis
Wright, C. D.....Minneapolis
Wright, C. O.....Luverne
Wright, F. R.....Minneapolis

Zeien, Thos.....North Branch
Zimbeck, R. D.....Montevideo

Digitized by Google

Membership of County Societies

Blue Earth County Medical Society

Davis, E. J., President....Mankato
Liedloff, A. G., Secretary.Mankato
Andrews, J. W.....Mankato
Benham, E. W.....Amboy
Bjelland, A. O.....Mankato
Bomberger, F. J.....Mapleton
Curran, G. R.....Mankato
Davis, F. U.....St. Clair
Edwards, J. M.....Mankato
Frisbie, Wm.....Mankato
Hering, H. H.....Lake Crystal
Hielscher, J. A.....Mankato
Holbrook, J. S.....Mankato
Holman, C. J.....Mankato
Hughes, Helen.....Mankato
Hughes, Jane.....Mankato
James, J. H.....Mankato
Krueger, L. W.....Mapleton
McMicheal, O. H.....Vernon Center
Merrill, J. E.....Amboy
Osborn, Lida.....Mankato
Parker, H. G.....Madison Lake
Schmauss, F. L.....Mankato
Smith, D. D.....Mankato
Steel, E. D.....Mankato
Warham, T. T.....Vernon Center
Webster, I. D.....Mankato
Williams, Jno.....Lake Crystal

Blue Earth Valley Medical Society
Faribault and Martin Counties

Franklin, A. J., President....
.....Blue Earth City
Schmitt, S. C., Secretary.....
.....Blue Earth City
Burton, C. N.....Elmore
Hunt, F. N.....Blue Earth City
Hunte, A. F.....Truman
Jacobs, A. C.....Elmore
Leudtke, G. H.....Fairmont
Nannestad, J. R.....Bricelyn
Richardson, W. J.....Fairmont

Brown-Redwood County Medical Society

Weiser, G. B., President..New Ulm
Vogel, J. H., Secretary...New Ulm
Bayley, Edmund.....New Ulm
Bennett, O. E.....Sanborn
Bickford, F. J.....Milroy
Clement, L. O.....Lamberton
Gag, E. W.....Wabasso
Pease, Giles P.....Redwood Falls
Reineke, G. F.....New Ulm
Rothenberg, J. C.....Springfield
Schlegel, H. E.....Redwood Falls
Schoch, J. L.....New Ulm
Schrader, J. S.....Springfield
Strickler, O. C.....New Ulm
Sullivan, Thos.....Springfield
Welcome, J. W. B., Jr..Sleepy Eye
Welcome, J. W. B., Sr..Sleepy Eye
Wood, D. F.....Hanska

Chisago-Pine County Medical Society

Murdock, H. G., President....
.....Taylors Falls
Werner, O. S., Secretary.Lindstrom
Anderson, C. A.....Rush City
Barnum, E. E.....Pine City
Cowan, D. W.....Sandstone
Dredge, H. P.....Sandstone
Gemmel, J. E.....Rush City
Gunz, A. N.....Centre City
Hertzman, C. O.....Lindstrom
Lundgren, C. E.....North Branch
Lyons, A.....Pine City
Magnusson, H. V.....Clinton
Stephan, E. L.....Hinckley
Sternberg, Oscar.....North Branch
Stowe, A. J.....Rush City
Taustrom, Ingeborg.....Harris
Weisman, R. L.....Pine City
Zeien, Thos.....North Branch

Digitized by Google

Clay-Becker County Medical Society

Alexander, F. H., President.... ..... Barnesville
Awty, W. J., Secretary..Moorhead
Aborn, Wm. H.....Hawley
Barton, E. R.....Frazee
Carman, J. B.....Detroit
Darrow, Daniel C.....Moorhead
Egge, T. S.....Moorhead
Germain, R. T.....Barnesville
Heimark, O. E.....Hawley
Holt, Edward E.....Detroit
Hyde, Leon W.....Moorhead
Jones, S. S.....Frazee
Weeks, L. C.....Detroit

Dakota County Medical Society

Adsit, A. M., President...Hastings
Dodge, W. M., Secretary..... ..... Farmington
Fitch, Julius C.....Hastings
Van Beeck, G. C.....Hastings
Van Cappellen, Chas.....Hastings

Freeborn County Medical Society

Wilcox, H. H., Secretary Albert Lea
Burton, O. A.....Albert Lea
McKey, T. F.....Albert Lea
Rodli, O. E.....Albert Lea
Stevenson, Geo. A.....Albert Lea
Todd, W. E.....Albert Lea
Von Berg, J. P.....Albert Lea
Williams, Robt.....Alden

Goodhue County Medical Society

Conley, A. T., President..... .....Cannon Falls
Anderson, J. V., Secretary..... .....Red Wing
Dimmitt, F. W.....Red Wing
Gryttenholm, K.....Zumbrota
Hewitt, C. N.....Red Wing
Jaehnig, B.....Red Wing
Jewell, E. L.....Pine Island
Jones, A. W.....Red Wing
McKinstry, H. L.....Red Wing
Sawyer, H. P.....Goodhue
Swarthout, Ellis .....Goodhue
Wellner, G. C.....Red Wing

Hennepin County Medical Society

Hunter, C. H., President..... .....Minneapolis
Knights, F. A., Secretary..... .....Minneapolis
Abbott, A. W.....Minneapolis
Aldrich, A. G.....Minneapolis
Aling, C. P.....Minneapolis
Anderson, A. E.....Minneapolis
Anderson, J. D.....Minneapolis
Aurand, W. H.....Minneapolis
Aurness, P. A.....Minneapolis
Aylmer, A. L.....Minneapolis
Baier, Florence C.....Minneapolis
Barber, J. P.....Minneapolis
Bartlett, C. K.....Minneapolis
Barton, G. C.....Minneapolis
Bass, G. W.....Minneapolis
Baxter, S. H.....Minneapolis
Beard, R. O.....Minneapolis
Beckman, E. H.....Minneapolis
Behrens, B. M.....Minneapolis
Bell, J. W.....Minneapolis
Bendeke, Karl.....Minneapolis
Benjamin, A. E.....Minneapolis
Bessessen, A. N.....Minneapolis
Bishop, C. W.....Minneapolis
Blake, James .....Hopkins
Bloom, Wm. D.....Minneapolis
Bouman, H. A.....Minneapolis
Bracken, H. M.....St. Paul
Bradley, C. H.....Minneapolis
Brown, E. J.....Minneapolis
Brown, R. S.....Minneapolis
Byrnes, W. J.....Minneapolis
Carlaw, C. M.....Minneapolis
Cates, A. B.....Minneapolis
Chapman, O. S.....Minneapolis
Chowning, W. M.....Minneapolis
Cirkler, A. A.....Minneapolis
Cockburn, J. C.....Minneapolis
Cohen, H. A.....Minneapolis
Condit, W. H.....Minneapolis
Cooke, W. H.....Minneapolis
Corbett, J. F.....Minneapolis
Cosmann, E. O.....Minneapolis
Cowles, D. C.....Minneapolis
Crosby, J. A.....Minneapolis
Cross, Jno. G.....Minneapolis
Crume, Geo. P.....Minneapolis
Dart, L. O.....Minneapolis

Digitized by Google

Day, L. W.....Minneapolis
Dearborn, *B.....Minneapolis
De la Barre, Wm.....Minneapolis
Deziel, G.....Minneapolis
Disen, C. F.....Minneapolis
Donaldson, C. A.....Minneapolis
Doyle, J. W.....Minneapolis
Driesbach, N.....Minneapolis
Dumas, C. H.....Minneapolis
*Dunn, J. H.....Minneapolis
Dunsmoor, F. A.....Minneapolis
Dutton, C. E.....Minneapolis
Eitel, Geo. G.....Minneapolis
Erb, Frederick A.....Minneapolis
Erdman, C. A.....Minneapolis
Estabrook, E. L.....Minneapolis
Farr, R. E.....Minneapolis
Fischer, Gustave.....Minneapolis
Fliesburg, O. A.....Minneapolis
Force, J. F.....Minneapolis
Fullerton, Ellen C.....Minneapolis
Gordon, Geo. J.....Minneapolis
Gould, J. B.....Minneapolis
Graham, B. F.....Minneapolis
Green, E. K.....Minneapolis
Hack, C. W.....Minneapolis
Haggard, G. D.....Minneapolis
Hall, W. A.....Minneapolis
Hare, E. R.....Minneapolis
Harrah, J. W.....Minneapolis
Hartzell, Thos. B.....Minneapolis
Haynes, F. E.....Minneapolis
Head, Geo. D.....Minneapolis
Hill, R. J.....Minneapolis
Hirschfield, Adolph.....Minneapolis
Hoegh, Knut.....Minneapolis
Hvoslef, Jakob.....Minneapolis
Hutchins, E. A.....Minneapolis
Hynes, James .....Minneapolis
Ingraham, Elizabeth...Minneapolis
Irwin, A. F.....Minneapolis
Jones, Herbert W.....Minneapolis
Jones, W. A.....Minneapolis
Kelly, E. S.....Minneapolis
Kelsey, C. A.....Minneapolis
Kennedy, Jane.....Minneapolis
Kimball, H. H.....Minneapolis
Kistler, C. M.....Minneapolis
Kistler, J. M.....Minneapolis
Kriedt, Dan'l.....Minneapolis
Laliberte, Thos.....Minneapolis
Lapierre, C. A.....Minneapolis
Laton, W. S.....Minneapolis
Law, A. A.....Minneapolis
Laws, F.....Minneapolis
Lee, Thos. G.....Minneapolis
Leland, H. N.....Minneapolis

*Deceased.

Lewis, J. M.....Minneapolis
Lind, A.....Minneapolis
Lind, C. J.....Minneapolis
Linjer, O. E.....Minneapolis
Linton, W. B.....Minneapolis
Little, J. W.....Minneapolis
Litzenberg, J. C.....Minneapolis
Loberg, A. E.....Minneapolis
Lockwood, S. O.....Minneapolis
Long, Jesse.....Minneapolis
Luther, Clara M.....Minneapolis
McCollom, C. A.....Minneapolis
McDaniel, Oriana.....Minneapolis
McDonald, H. N.....Minneapolis
McDonald, I. C.....Minneapolis
McDougald, D. W.....Minneapolis
McIntyre, E. H.....Minneapolis
McMurdy, R. S.....Minneapolis
Macdonald, J. W.....Minneapolis
Malchow, C. W.....Minneapolis
Mann, A. T.....Minneapolis
Mead, Marion A.....Minneapolis
Mintener, J. W.....Minneapolis
Mitchell, L. C.....Minneapolis
Monahan, J. A.....Minneapolis
Moore, J. E.....Minneapolis
Moore, J. T.....Minneapolis
Moorehead, Martha B...Minneapolis
Morton, H. McI.....Minneapolis
Murdock, A. J.....Minneapolis
Murphy, W. B.....Minneapolis
Murray, Wm. R.....Minneapolis
Nelson, H. S.....Minneapolis
Newhart, Horace.....Minneapolis
Nippert, L. A.....Minneapolis
Nootnagle, Chas.....Minneapolis
Nye, W. F.....Minneapolis
Olson, O. A.....Minneapolis
Orton, H. N.....Minneapolis
Parker, E. H.....Minneapolis
Peters, R. M.....Minneapolis
Phillips, Edwin.....Minneapolis
Pineo, W. B.....Minneapolis
Poehler, F. T.....Minneapolis
Polk, Wm. R.....Minneapolis
Putman, Catherine E...Minneapolis
Quinby, Thos. F.....Minneapolis
Read, Harry.....Minneapolis
Rees, S. P.....Minneapolis
Ringnell, C. J.....Minneapolis
Rishmiller, J. H.....Minneapolis
Roberts, Cora B.....Minneapolis
Roberts, Thos. S.....Minneapolis
Rochford, W. E.....Minneapolis
Rogers, Jno. J.....Minneapolis
Rutledge, J. W.....Minneapolis
Schwyzer, G.....Minneapolis
Seashore, Gilbert.....Minneapolis

Digitized by Google

Sessions, J. C.....Minneapolis
Shelden, W. D.....Minneapolis
Simpson, Chas.....Minneapolis
Simpson, J. D.....Minneapolis
Slagle, C. G.....Minneapolis
Smith, C. A.....Minneapolis
Smith, D. E.....Minneapolis
Spring, W. P.....Minneapolis
Spratt, C. J.....Minneapolis
Spratt, C. N.....Minneapolis
Soderlind, A.....Minneapolis
Staples, H. L.....Minneapolis
Stewart, J. Clark.....Minneapolis
Straub, C. O.....Minneapolis
Strout, E. S.....Minneapolis
Stuart, J. H.....Minneapolis
Sweetser, H. B.....Minneapolis
Thomas, D. O.....Minneapolis
Thomas, Geo. H.....Minneapolis
Thorkelsen. Thorvald...Minneapolis
Tibbetts, J. I.....Wayzata
Tingdale, A. C.....Minneapolis
Todd, F. C.....Minneapolis
Towers, F. E.....Minneapolis
Towers, Mary E.....Minneapolis
Tupper, W. G. W.....Minneapolis
Ulrich, Henry L.....Minneapolis
VanderHorck, M. P....Minneapolis
Wang, A. M.....Minneapolis
Wanous, E. L.....Minneapolis
Watson, J. A.....Minneapolis
Watson, Jno.....Hopkins
Wesbrook, F. F.....Minneapolis
Weston, C. G.....Minneapolis
Whipple, C. D.....Minneapolis
White, S. M.....Minneapolis
Wilcox, Archa E.....Minneapolis
Wilcox, M. R.....Minneapolis
Wilcox, Van H.....Minneapolis
Williams, C. W.....Minneapolis
Williams, H. L.....Minneapolis
Williams, U. G.....Minneapolis
Wilson, L. B.....Minneapolis
Woodard, F. R.....Minneapolis
Woodworth, Elizabeth..Minneapolis
Wright, C. B.....Minneapolis
Wright, C. D.....Minneapolis
Wright, F. R.....Minneapolis

Houston-Fillmore County Medical Society

Browning, W. E., President...
.....Caledonia
Drake, F. A., Secretary..Lanesboro
Fischer, O. F.....Houston
Gowdy, F. A.....Harmony
Grinnell W. B.....Preston
Hart, A. B.....Canton
Jensen, T.....Spring Grove
Lommen, A. P.....Lanesboro
Onsgard, L. K.....Houston
Plummer, G. A.....Granger
Reay, G. R.....Hokah
Woodruff, C. N.....Wyckoff

Kandiyohi-Swift County Medical Society

Scofield, C. L., President...Benson
Newman, G. A., Secretary.....
.....New London
Archibald, F. M.....Atwater
Daignault, Oscar.....Benson
Frost, E. H.....Willmar
Johnson, Christian.....Willmar
Rains, J. M.....Willmar

Lyon-Lincoln County Medical Society

Valentine, W. H., President..Tracy
Workman, H. M., Secretary..Tracy
Bacon, C. G.....Marshall
Cox, A. J.....Tyler
Germo, Chas.....Balaton
Knudson, B. C.....Tyler
Persons, C. E.....Marshall
Thordarson, Th.....Minneota
Wakefield, Wm.....Lake Benton
Weyrens, P. J.....Ivanhoe
Wimer, T. H.....Marshall

McLeod County Medical Society

Bolles, D. W., President.Brownton
James, P. E., Secretary.Hutchinson
Barrett, E. E.....Glencoe
Burch, F. E.....Glencoe
Clark, H. S.....Glencoe
Clement, Jno. B.....Lester Prairie
Dorsey, John H.....Glencoe
Hovorka, Thos. W.....Silver Lake
Kohler, Fred.....Stewart
Meek, S. J.....Winsted
Schefcik, John F.....Hutchinson
Sheppard, Fred.....Hutchinson
Sheppard, P. E.....Hutchinson
Tinker, C. W.....Stewart
Vollmer, Jos.....Hutchinson

Digitized by Google

Meeker County Medical Society

Hildebrandt, E., President.....Forest City
Robertson, J. W., Secretary...Litchfield
Cassell, H. E.....Litchfield
Chapman, W. E.....Litchfield
Cutts, G. A. C.....Grove City
Kauffman, J. H.....Dassel
Morell, Harry .....Litchfield
Vibrance, C. G.....Watkins

Mower County Medical Society

Cobb, W. F., President.....Lyle
Hegge, C. A., Secretary....Austin
Allen, A. W.....Austin
Davis, F. W.....Adams
Fiester, Fannie K.....Austin
Frazer, W. A.....Lyle
Freeman, W. W.....Grand Meadow
Gray, G. W.....Brownsdale
Hart, M. J.....Le Roy
Hegge, O. H.....Austin
Henslin, A. E.....Le Roy
Hollister, W. L.....Austin
Johnson, C. H.....Austin
Kendrick, W. N.....Austin
Leck, C. C.....Austin
Lewis, C. F.....Austin
Melby, Benedick.....Hayfield
Maercklein, C. J.....Le Roy
Maercklein, O. C.....Adams
Pierson, H. F.....Austin
Rodger, E. H. Washburn....Austin
Schottler, G. J.....Dexter
Schultz, F. W.....Waltham

Nicollet County Medical Society

Dodge, Franklin A., President..Le Sueur
La Clerc, Joseph E., Secretary.Le Sueur
Aitkins, H. B.....Le Sueur Center
Daniels, J. W.....St. Peter
Darling, W. H.....St. Peter
Hopkins, M. P.....St. Peter
Kirk, D. A.....Le Sueur
Merritt, Geo. F.....St. Peter
Munger, P. H.....Nicollet
Nicholson, D. A.....St. Peter
Strathern, F. P.....St. Peter
Tomlinson, H. A.....St. Peter
Valin, H. D.....St. Peter

Olmsted County Medical Society

Plummer, H. S., President.....Rochester
Granger, Chas. T., Secretary...Rochester
Baker, A. L.....Kasson
Dugan, R. C.....Eyota
Graham, C.....Rochester
Granger, Gertrude Booker Rochester
Gulick, W. V.....Oronoco
Judd, E. S.....Rochester
Mayo, C. H.....Rochester
Mayo, W. J.....Rochester
Mayo, W. W.....Rochester
Millet, M. C.....Rochester
Mosse, F. R.....Rochester
Phelps, R. M.....Rochester
Stinchfield; A. W.....Rochester
Witherstine, H. H.....Rochester

Park Region District and County Medical Society

Wilkins, Otter Tail, Douglas, and Grant Counties

Hensel, E. A., President.Alexandria
Baker, A. C., Secretary Fergus Falls
Armstrong, L. W.....Breckenridge
Bergquist, K. E.....Henning
Berthold. J. L.....Perham
Boyd, H. J.....Alexandria
Cowing, Phil. G.....Ashby
Davis, L. A.....Dalton
Duncan, W. T.....Fergus Falls
Freeborn, J. A.....Fergus Falls
Haugan, O. M.....Fergus Falls
Kittleson, Thos. M....Fergus Falls
Livingstone, J. L....Pelican Rapids
Lyng, John A.....Alexandria
McLean, T. N.....Fergus Falls
Mathieson, A. B.....Evansville
Meckstroth, C. W.....Brandon
Quitmeyer, O. C....Parkers Prairie
Rae, D. F.....Fergus Falls
Regner, J. A.....Alexandria
Seashore, D. E.....Battle Lake
Schocht, Fred E.....Fergus Falls
Serkland, J. C.....Rothsay
Sherping, O. Th.....Fergus Falls
Smith, L. G.....,Foxhome
Vigen, J. G.....Fergus Falls

Digitized by Google

Ramsey County Medical Society

Taylor, H. L., President..St. Paul
Geer, E. F., Secretary.....St. Paul
Abbott, E. J.....St. Paul
Allen, Mason.....St. Paul
Arcker, A. B.....St. Paul
Appleby, E. V.....St. Paul
Archibald, O. W.....St. Paul
Armstrong, J. M.....St. Paul
Artz, C. P.....St. Paul
Bacon, Knox .....St. Paul
Bacon, L. C.....St. Paul
Ball, C. R.....St. Paul
Barsness, Nellie.....St. Paul
Benepe, L. M.....St. Paul
Bettingen, J. W.....St. Paul
Binder, Geo. A.....St. Paul
Boeckmann, E.....St. Paul
Bole, R. S.....St. Paul
Brimhall, J. B.....St. Paul
Brown, E. I.....St. Paul
Brown, Le Roy.....St. Paul
Buckley, E. W.....St. Paul
Cavanaugh, J. O.....St. Paul
Chamberlin, J. W.....St. Paul
Christison, J. T.....St. Paul
Clark, C. L.....White Bear Lake
Colvin, A. R.....St. Paul
Cook, Paul B.....St. Paul
Coon, Geo. M.....St. Paul
Cuff, Wm. S.....St. Paul
Davis, H. W.....St. Paul
Davis, William.....St. Paul
Dennis, W. A.....St. Paul
Denny, C. F.....St. Paul
Dohm, C. L.....St. Paul
Dunning, A. W.....St. Paul
Earl, Robert O.....St. Paul
Eisengraeber, G. A.....St. Paul
Eshelby, E. C.....St. Paul
Ferguson, J. C.....St. Paul
Flagg, S. D.....St. Paul
Foster, Burnside .....St. Paul
Foster, N. W.....St. Paul
Fullerton, W. S.....St. Paul
Fulton, J. F.....St. Paul
Gilfillan, J. S.....St. Paul
Gillette, A. J.....St. Paul
Goodrich, Judd .....St. Paul
Gravelle, J. M. A.....St. Paul
Greene, C. L.....St. Paul
Haas, C. A.....St. Paul
Hall, A. R.....St. Paul
Hall, Charlotte .....St. Paul
Hawkins, V. J.....St. Paul
Heath, A. C.....St. Paul
Henderson, A.....St. Paul
Hesselgrave, S. S.....St. Paul
Hoff, Peder A.....St. Paul
Hunt, H. E.....St. Paul
Johnson, Asa .....St. Paul
Johnson, H. C.....St. Paul
Jones, Talbot .....St. Paul
Kahala, Arthur .....St. Paul
Kannary, E. L.....St. Paul
Keam, A. P.....St. Paul
Kelley, W. D.....St. Paul
Kirkwood, S. M.....St. Paul
Kistler, A. S.....St. Paul
Lando, D. H.....St. Paul
Lankester, Howard .....St. Paul
Leavitt, F. E.....St. Paul
Lee, C. E.....St. Paul
Lewis, J. D.....St. Paul
Lewis, W. W.....St. Paul
Lundholm, E. M.....St. Paul
McCloud, C. N.....St. Paul
McClung, Alberta V..Corning, Cal.
McCord, E. W.....St. Paul
McDavitt, Thos.....St. Paul
McLaren, Jeanette .....St. Paul
Macdonald, Angus .....St. Paul
MacLaren, Archibald .....St. Paul
MacNamara, J. G.....St. Paul
Markoe, J. C.....St. Paul
Mead, C. J.....St. Paul
Miller, A. W.....St. Paul
Miller, C. C.....St. Paul
Nelson, J. C.....St. Paul
Nelson, L. A.....St. Paul
Nichols, A. B.....St. Paul
Nippert, H. T.....St. Paul
Norton, H. G.....St. Paul
O'Brien, H. J.....St. Paul
O'Connor, J. V.....St. Paul
Odendahl, F. H.....St. Paul
Ohage, J.....St. Paul
Pine, A. A.....St. Paul
Pine, O. S.....St. Paul
Platt, J. J.....St. Paul
Plondke, F. J.....St. Paul
Pool, Daniel .....St. Paul
Quinn, J. A.....St. Paul
Ramsey, W. R.....St. Paul
Renz, G. A.....St. Paul
Riggs, C. E.....St. Paul
Ritchie, H. P.....St. Paul
Ritchie, Parks .....St. Paul
Rogers, J. T.....St. Paul
Rothrock, J. L.....St. Paul
Roy, Philemon .....St. Paul

Digitized by Google

Ryan, Margaret .....St. Paul
Savage, Francis J.....St. Paul
Schadle, J. E.....St. Paul
Schwyzer, Arnold .....St. Paul
Senkler, Geo. E.....St. Paul
Shimonek, Anton .....St. Paul
Simon, B. F.....St. Paul
Skinner, Geo. A.....
.....Ft. Harrison, Mont.
Smith, Charles E.....St. Paul
Sneve, Haldor .....St. Paul
Sohlberg O.....St. Paul
Stamm, G.....St. Paul
Stevens, Edmund .....St. Paul
Stone, A. J.....St. Paul
Sweeney, Arthur .....St. Paul
Sweney, C. F.....St. Paul
Tessler, M.....St. Paul
Van Slyke, C. A.....St. Paul
Van Slyke, F. W.....St. Paul
Vieregge, J. A.....St. Paul
Vittum, W. H.....St. Paul
Walrath, Belle .....St. Paul
Walsh, E. F.....St. Paul
Warne, E. G.....St. Paul
Wheaton, C. A.....St. Paul
Whitacre, J. C.....St. Paul
Whitcomb, E. H.....St. Paul
Whitman, A. F.....St. Paul
Whitney, A. W.....St. Paul
Williams, C.....St. Paul
Wood, E. S.....St. Paul

Red River Valley Medical Society

Polk, Marshall, Kittson, Roseau, and Norman Counties

Wattam, G. S., President..Warren
Holte, H., Secretary.....Crookston
Belcourt, O. E.....Argyle
Bertelson, O. L.....Crookston
Biorn, N. A.....Ada
Bisjord, J. N.....Fertile
Blomburgh, A. F.....St. Hilaire
Bratrud, Theodore .....Warren
Chapin, J. S.....Euclid
Cummings, J. C.....St. Hilaire
Dampier, C. E.....Crookston
Denniston, C. H.....Crookston
Donnelson, K. A.....Twin Valley
Dunlop, A. H.....Crookston
Farley, F. X.....Crookston
Farmer, S. S.....Beltrami
Gambell, S. H....Thief River Falls
Gilmore, Roland.....Bemidji
Golberg, M. L.....Twin Valley
Gronerud, Aug.....Kennedy
Gronvold, F. O.....Gary
Grundy, H.....Thief River Falls
Hanson, M.....Hendrum
Hodgson, H. H.....Fisher
Kjelland, J. S.....Crookston
Kock, John C....Thief River Falls
Lemieaux, Israel..Red Lake Falls
Lockwood, M. M.....Hallock
McEachren, A.....McIntosh
McKinnon, M.....Fosston
Melby, O. F.....Warren
Mitchell, F.....Euclid
Morley, G. A.....Crookston
Muir, James B.....Hallock
Nelson, A.....Fertile
Neraal, P. O.....McIntosh
Norin, Frank L.....Roseau
Ohnstad, J.....McIntosh
Olson, O. H.....Erskine
Patterson, F. D.....Lambert
Risjord, J. W.....Fertile
Shaleen, Arthur W.....Hallock
Slippern, H.....Fosston
Smith, H. W.....Crookston
Stuhr, H. C.....Argyle
Tupper, Geo.....Thief River Falls
Vistaunet, P. L...Thief River Falls
Watson, N. M.....Red Lake Falls
Wilkinson, John Clinton.....
.....Red Lake Falls

Renville, Chippewa, Lac qui Parle, and Yellow Medicine County Medical Society

Stoddard, A. G., President..Fairfax
Zimbeck, R. D., Secretary.....
.....Montevideo
Bacon, R. S.....Montevideo
Burns, M. A.....Milan
Cole, Herman B.....Franklin
Clay, E. M.....Renville
Cressey, F. J.....Granite Falls
Duncan, Henry .....Marietta
Gammell, H. W.....Madison
Giere, E. O.....Madison
Hacking, F. H.....Granite Falls
Hendrickson, H. W....Montevideo
Johnson, A. Einar.....Madison
Johnson, H. M.....Dawson
Keene, R. K.....Bellingham
Kilbride, J. S.....Canby
Lee, Wm. P.....Fairfax
Lumley, W. A.....Renville
Mesker, G. H.....Olivia

Digitized by Google

Moore, W. J.....Wood Lake
Nelson, N. A.....Dawson
Penhall, F. W.....Morton
Rogers, C. E.....Montevideo
Schjelderup, N. H....Granite Falls
Stemsrud, A. A.....Dawson
Stratton, W. M.....Granite Falls
Thrane, M.....Madison
Titus, J. H.....Sacred Heart
Torgerson, W. B.....Clarkfield
Watson, Charles W.....Boyd

Rice County Medical Society

Rose, F. M., President....Faribault
Huxley, F. R., Secretary..Faribault
Brubaker, E. E.....Northfield
Cool, D. M.....Faribault
Dodge, A. A.....Faribault
Greaves, Wm.....Northfield
Hunt, W. A.....Northfield
Macdonald, A.....Morristown
Mayland, M. L.....Faribault
Phillips, J. R.....Northfield
Pringle, A. F.....Northfield
Robillard, W. H.....Faribault
Rogers, A. C.....Faribault
Rumpf, W. H.....Faribault
Smith, P. A.....Faribault
Warren, F. S.....Faribault
White, J. B.....Faribault
Wilson, W.....Northfield

Scott-Carver County Medical Society

Landenberger, John, President.
.....New Prague
Schneider, H. A., Secretary..Jordan
Eisengraeber, G. A..Young America
Grivelli, C. T.....Young America
Phillips, W. H.....Jordan
Reiter, H. W.....Shakopee
Sanford, Jas.....New Market

Sibley County Medical Society

Jones, D. N., President....Gaylord
Strout, G. E., Secretary..Winthrop
Bushey, M. E.....Arlington
Flower, Ward Z.....Gibbon
Kanne, C. W.....Arlington
Longford, J. J.....Green Island
Lord, B. E.....Henderson
Mee, P. H.....Gaylord

Southwestern Society

Pipestone, Rock, Nobles, Murray, Cottonwood, and Jackson Counties

Weiser, F. R., President...Windom
Jenckes, H. D., Secretary.Pipestone
Bice, C. W.....Ruthton
Beadle, W. D.....Windom
Bennion, P. H.....Windom
Carr, Ezra M.....Pipestone
Clark, A. H.....Worthington
Francis, Thos. B.....Edgerton
Froshaugh, S. J.....Hills
Geyerman, P. G.....Brewster
Green, C. A.....Windom
Hennings, A. J.....Hardwick
King, Emil .....Fulda
McGillivary, Wm.....Pipestone
Manson, F. M.....Worthington
May, C. C.....Adrian
Miller, Victor I.....Westbrook
Moen, J. K.....Windom
Nelson, C. P.....Westbrook
Rulien, Frank W.....Currie
Searles, S. S.....Lakefield
Spalding, A. E.....Luverne
Sullivan, M.....Adrian
Taylor, Wm. J.....Pipestone
Wheat, F. C.....Ellsworth
Wright, C. O.....Luverne

St. Louis County Medical Society

McComb, C. F., President..Duluth
Patton, F. J., Secretary....Duluth
Adams, B. S.....Hibbing
Allen, H. B.....Cloquet
Bagley, W. R.....Duluth
Braden, A. J.....Duluth
Brunelle, A. M.....Cloquet
Budd, J. D.....Two Harbors
Bullen, J. W.....Eveleth
Chapman, T. L.....Duluth
Collins, H.....Duluth
Coventry, W. A.....Duluth
Crowe, J. M.....Virginia
Davis, H. S.....Duluth

Digitized by Google

Drenning, F. C.....Duluth
Farmer, J. C.....McKinley
Graham, D.....Duluth
Graham, R.....Duluth
Greeley, L. Q.....Duluth
Harwood, W. E.....Eveleth
Huntoon, A. F.....Duluth
Johnson, A. E.....Cloquet
Keyes, C. R.....Duluth
Knauff, M. K.....Two Harbors
Lum, C. E.....Duluth
Lyman, F.....Duluth
McCuen, J. A.....Duluth
Magie, W. H.....Duluth
Maris, Emily .....Duluth
More, C. W.....Eveleth
Pare, L. F.....Duluth
Robinson, J. M.....Duluth
Rood, D. C.....Hibbing
Shaw, A. W.....Buhl
Stewart, C. A.....Duluth
Stierle, Adolph, Jr....Two Harbors
Strech, E. D.....Duluth
Taylor, A. C.....Duluth
*Titcomb, J. D.....Duluth
Walker, A. E.....Duluth

*Deceased.

Stearns-Benton County Medical Society

Hilbert, Pierre A., President.. .....Melrose
Boehm, J. C., Secretary...St. Cloud
Beebe, Warren L.....St. Cloud
Brigham, G. S.....St. Cloud
Chilgren, G. A.....Sauk Rapids
DuBois, Julian A.....Sauk Center
Dunn, John B.....St. Cloud
Edmunds, I. L.....St. Cloud
Ferree, George P..New Paynesville
Holdridge, Geo. A.....Foley
Hubert, R. I.....St. Cloud
Lamb, Harold L.....Sauk Center
Lewis, Edwin J.....Sauk Center
McMasters, James M..Sauk Center
Maloy, Geo. E.....St. Cloud
Pilon, Pierre C....New Paynesville
Putney, Geo. E....New Paynesville
Sherwood, Geo. E.....Kimball
Van Cleve, Samuel H..Minneapolis
Whiting, Arthur D.....St. Cloud
Wolner, O. H.....St. Cloud

Steele County Medical Society

Schulze, Geo., President..Owatonna
Stewart, Allan B., Secretary... .....Owatonna
Adair, John H.....Owatonna
Andrist, James W.....Ellendale
Bakke, Ole H....Blooming Prairie
Bigelow, Edward E.....Owatonna
Eustis, Warren C.....Owatonna
Hatch, Theodore L.....Owatonna
Twiford, William H.....Owatonna
Wood, William S..Blooming Prairie

Upper Mississippi Medical Society

Todd, Wadena, Beltrami, Cass, Hubbard, Morrison, Crow Wing, Aitkin

McKinnon, J. J., President.Wadena
Thabes, J. A., Secretary..Brainerd
Allen, Frank H.....Staples
Avery, J. F.....Aitkin
Babcock, L. W.....Wadena
Batcheller, Oliver T.....Brainerd
Beise, R. A.....Brainerd
Belsheim, A. G.....Aitkin
Brown, John B.....Farley
Cameron, William G.....Staples
Camp, James L.....Brainerd
Chance, J. P.....Royalton
Chance, Norman W....Little Falls
Coulter, Chas. F.....Wadena
Christie, George R....Long Prairie
Course, Chas.....Verndale
Courtney, Walter .....Brainerd
Cutler, Chas. F.....Park Rapids
Davis, A. M.....Akeley
Fortier, Geo. M. A.....Little Falls
Gilmore, R. T.....Bemidji
Groves, A. F.....Brainerd
Hemstead, Werner .....Brainerd
Kenyon, Paul C.....Wadena
Knickerbocker, Frank H....Staples
Lowthane, G. H.....Hewitt
Millspaugh, J. G.....Little Falls
Morrison, William R.....Bemidji
Mowers, S. W.....Brainerd
Nicholson, Jas.....Brainerd

Digitized by Google

Parrott, W. B.....Long Prairie
Richards, H. R.....Little Falls
Roberts, L. M.....Little Falls
Rounds, V. F.....Brainerd
Rudwell, Thomas F.....Cass Lake
Seguin, Edwin .....Buckman
Stone, W. T.....Park Rapids
Trace, O. C.....Little Falls
Van Valkenberg, B. F.....
.....Long Prairie
Wilcox, F. L.....Walker

Wabasha County Medical Society

Adams, W. T., President.....Elgin
Wilson, W. F., Secretary.Lake City
Adams, J. C.....Lake City
Bayley, E. H.....Lake City
Bond, J. F.....Wabasha
Cochrane, W. J.....Lake City
Davis, J. P.....Hammond
McGuigan, Henry .....Mazeppa
Milligan, W. F.....Wabasha
Slocumb, J. A.....Plainview
Waste, J. P.....Plainview
Woodruff, C. W. Transferred to Houston-Fillmore Co. Medical Society .....Wykoff

Watonwan County Medical Society

O'Connor, D. F., President.....
.....St. James
McCarthy, W. J., Secretary....
.....Madelia
Cooley, C. O.....Madelia
Flynn, J. P.....Madelia
Rowe, W. H.....St. James

Waseca County Medical Society

Cummings, D. S., President....
.....Waseca
Lynn, J. F., Secretary.....Waseca
Batchelder, E. J.....New Richland
Blanchard, H. G.....Waseca
Chamberlin, W. A.....Waseca
Hogen, H. O.....New Richland
O'Hara, J. J.....Alma City
Swartwood, F. A.....Waseca
Taylor, M. J.....Janesville

Washington County Medical Society

Merrill, B. J., President..Stillwater
Landeen, F. G., Secretary.....
.....Stillwater
Boleyn, E. S.....Stillwater
Clark, T. C.....Stillwater
Freligh, E. O'B.....Stillwater
Gauthier, W. L.....Stillwater
Haines, J. H.....Stillwater
Humphrey, W. R...South Stillwater
Noth, Henry W.....Marine Mills
Pratt, W. H.....Stillwater
Ryan, E. P.....Stillwater
Stevens, F. A.....Lake Elmo
Swartz, W. J.....Forest Lake
Thomas, O. F.....Lakeland
Watier, G. N.....Stillwater
Wells, E. E.....Stillwater
Voigt, W. C.....Stillwater

West Central Medical Society

Pope, Stevens, Traverse, and Big Stone Counties

Hulburd, H. L., President...Morris
Bolsta, Chas., Secretary..Ortonville
Bevans, T. F.....Morris
Caine, C. E.....Morris
Christenson, C. R.....Starbuck
Eberlin, E. A.....Glenwood
Fjelstad, C. A.....Glenwood
Fleming, A. S.....Wheaton
French, E. A.....Ortonville
Johnson, C. E.....Clinton
Kaess, A. J.....Ortonville
Karn, J.....Ortonville
Lamb, J. L.....Browns Valley
Larsen, A. D.....Herman
Leuty, Amos .....Morris
MacKenzie, L. F.....Villard
MacMurphy, Geo.....Ortonville
Nuckolls, G. W.....Tintha
Oliver, C. I.....Graceville
Randall, B. M.....Graceville
Thoreson, Th. N.....Benson
Wier, J. D.....Beardsley

Digitized by Google

Winona County Medical Society

Munger, L. H., President..Winona
McGaughey, J. B., Secretary..
.....Winona
Blair, Paul B.....Winona
Boyd, C. A.....Lewiston
Brown, Harry .....Rollingstone
Clark, C. N.....St. Charles
Gates, G. L.....Winona
Heise, W. F. C.....Winona
Keyes, E. D.....Winona
Lane, N. S.....Winona
Leicht, Oswald .....Winona
Lichtenstein, H. M.....Winona
Lynch, J. L.....Winona
McGaughey, H. F.....Winona
Muir, Edwin S.....Winona
Olsen, O. R.....St. Charles
Pritchard, D. B.....Winona
Robbins, C. P.....Winona
Rollins, F. H.....St. Charles
Scott, J. W.....St. Charles
*Staples, Franklin .....Winona
Steinbach, John .....Winona
Stewart, D. A.....Winona
Tweedy, G. J.....Winona
*Vernon, H. S.....Rushford

*Deceased.

Wright County Medical Society

Chilton, E. Y., President.....
.....Howard Lake
Shannon, E. A., Secretary..Buffalo
Catlin, John J.....Missoula, Mont.
Catlin, T. J.....Delano, Minn.
Hawkins, E. P.....Montrose
Haskell, A. D.....South Haven
Higgins, J. H.....Rockford
Hill, A. L.....Monticello
Lynch, R. F.....Monticello
McKeon, Owen .....St. Michael
O'Connor, J. P.....Delano
O'Hair, P.....Waverly
Powell, C. B.....Monticello
Ridgway, A. M.....Annandale
Rogers, G. M. F.....Buffalo
Shrader, E. E.....Watertown

Digitized by Google

Roll of Honor

Members of Twenty-five Years' Standing

Abbott, E. J.....St. Paul
Bartlett, C. K.....Minneapolis
Bigelow, E. E.....Owatonna
Catlin, T. J.....Delano
Cooley, C. O.....Madelia
Cummings, D. S.....Waseca
Davis, E. J.....Mankato
Dampier, C. E.....Crookston
Dunsmoor, F. A.....Minneapolis
Fitch, J. C.....Hastings
Flagg, S. D.....St. Paul
Force, J. F.....Minneapolis
Graham, B. F.....Minneapolis
Hewitt, C. N.....Red Wing
Hill, R. J.....Minneapolis
Hutchins, E. A.....Minneapolis
James, J. H.....Mankato
Jones, Talbot .....St. Paul
Kimball, H. H.....Minneapolis
McMichael, O. H....Vernon Center
McCollom, C. A.....Minneapolis
McGaughey, J. B.....Winona
McMurdy, R. S.....Minneapolis
Mayo, W. W.....Rochester
Murdock, A. J.....Minneapolis
Persons, C. E.....Marshall
Phillips, E.....Minneapolis
Rose, F. M.....Faribault
Simpson, Charles .....Minneapolis
Smith, Charles E.....St. Paul
Stinchfield, A. W.....Rochester
Stone, A. J.....St. Paul
Wheaton, C. A.....St. Paul

Digitized by Google

Presidents of the Association

SAMUEL WILLEY.....1869-1871
FRANKLIN STAPLES.....1871-1872
WILLIAM W. MAYO.....1872-1873
WILLIAM W. SWEENEY.....1873-1874
NATHAN B. HILL.....1874-1875
JOHN H. STEWART.....1875-1876
FRANCIS H. MILLIGAN.....1876-1877
OTIS AYER.....1877-1878
JEREMIAH E. FINCH.....1878-1879
ALBERT C. WEDGE.....1879-1880
ALEXANDER J. STONE.....1880-1881
CHARLES N. HEWITT.....1881-1882
PERRY H. MILLARD.....1882-1883
WILLIAM L. LINCOLN.....1883-1884
JAMES B. McGAUGHEY.....1884-1885
EDWARD J. DAVIS.....1885-1886
HANNIBAL H. KIMBALL.....1886-1887
CHARLES F. McCOMB.....1887-1888
CHARLES A. WHEATON.....1888-1889
JAMES H. DUNN.....1889-1890
WARREN L. BEEBE.....1890-1891
PARKS RITCHIE.....1891-1892
AMOS W. ABBOTT.....1892-1893
WILLIAM J. MAYO.....1893-1894
JUSTUS OHAGE.....1894-1895
FRANK ALLPORT.....1895-1896
WILLIAM D. FLINN.....1896-1897
JOHN F. FULTON.....1897-1898
FREDERICK A. DUNSMOOR.....1898-1899
WALTER COURTNEY.....1899-1900
WILLIAM DAVIS.....1900-1901
WILLIAM ASBURY HALL.....1901-1902
JOHN W. ANDREWS.....1902-1903
CHARLES LYMAN GREENE.....1903-1904

Digitized by Google

INDEX

Abbott A. W., discussion on chronic myocarditis..... 152
Abbott, E. J., discussion on acute articular rheumatism..... 326
Adams, W. T., notes on management of fractures of the lower extremity with Hodgen's splint, with report of cases..... 59
Address of Welcome..... 31
Andrenalin, necrosis of soft parts following enormous subcutaneous injections of 155
Anesthesias, observations drawn from an experience of eleven thousand 91
Anginas, on certain non-diphtheritic membranous..... 103
Ante-partum examination, the importance of..... 206
Archibald, F. M., discussion on acute articular rheumatism..... 325
Archibald, O. W., discussion on adrenalin..... 157

Beard, R. O., scientific methods in medical education..... 346
Beard, R. O., the modern teaching of materia medica and therapeutics 256
Bell, J. W., prognosis and treatment of chronic myocarditis..... 146
Benjamin, A. E., discussion on anesthesia..... 101
Benjamin, A. E., discussion on infections of the knee-joint..... 123
Benjamin, A. E., discussion on operations for uterine displacement 137
Benjamin, A. E., occipital meningocele, with a report of a case operated upon 260
By-laws, report of committee on..... 17

Cancer and ulcer of the stomach, the etiological relationship between 193
Cervical glands, the indications for operation on enlarged..... 288
Christenson, C. R., the abuse of drugs..... 364
Cobb, W. F., discussion on ante-partum examination..... 210
Cobb, W. F., discussion on pneumonia..... 84
Colvin, A. R., hypertrophy and inflammation of the male breast... 267
Conley, A. T., discussion on pneumonia..... 84
Conley, A. T., pneumonia, a short review of its treatment for the last fifty years..... 68
Constitution and by-laws..... 379
Corbett, J. Frank, discussion on tuberculosis..... 229
Corbett, J. Frank, tuberculosis a preventable disease, with especial consideration of the distribution of tubercle-bacilli and the usual avenues of infection..... 218
Cross, J. G., discussion on the heart in acute infections..... 282
Cross, J. G., discussion on pneumonia..... 83
Cross, J. G., discussion on tuberculosis..... 287
Cross, J. G., the heart in acute infections..... 274
Council, report of the to the house of delegates..... 16

Digitized by Google

Councilors, reports of 10
Courtney, Walter, subparietal injuries of the kidneys, with report of four cases 230
Culinary hygiene: some hints on preparation and selection of food.. 338

Day, L. W., discussion on the heart in acute infections 281
Day, L. W., the recognition of tuberculosis as a contagious disease 283
Dennis, W. A., discussion on cervical glands 295
Discussion on the indications for operation on enlarged cervical glands 293
Dennis, W. A., the indications for operation on enlarged cervical glands 288
Discussion on acute articular rheumatism 324
Discussion on ante-partum examination 210
Discussion on chronic myocarditis 151
Discussion on culinary hygiene 344
Discussion on adrenalin 157
Discussion on electrical injuries 362
Discussion on infection of the knee-joint 122
Discussion on non-diphtheritic membranous anginas 113
Discussion on operations for uterine displacement 135
Discussion on pneumonia 81
Discussion on surgery in general practice 214
Discussion on the heart in acute infections 281
Discussion on the inebriate, a medical and social problem 299
Discussion on the recognition of tuberculosis as a contagious disease 287
Discussion of the surgical treatment of epithelioma of the lip 376
Discussion on the surgical treatment of varicose veins 335
Drugs, the abuse of 364
Dubois, J. A., discussion on surgery in general practice 215
Dugan, R. C., discussion on anesthesia 102
Dugan, R. C., discussion on nasal suppuration 253
Dugan, R. C., discussion on operations for uterine displacement 137
Dugan, R. C., discussion on surgery in general practice 216
Dunning, Arthur W., the inebriate, a medical and social problem.. 296
Dunning, A. W., discussion on the inebriate 301
Dunsmoor, F. A., discussion on adrenalin 157
Dunsmoor, F. A., discussion on electrical injuries 362
Dunsmoor, F. A., discussion on operations for uterine displacement 137
Dunsmoor, F. A., discussion on surgery in general practice 214
Dunsmoor, F. A., necrosis of soft parts following enormous subcutaneous injections of adrenalin 155
Duodenal ulcer, symptoms and diagnosis, based on forty-six operated cases: 33 males and 13 females 185

Electrical injuries, a study of 352
Education in medicine, the democracy of: a plea for broadened policies 303
Epithelioma of the lip, the surgical treatment of 370

Ferguson, Alexander Hugh, oration on surgery 44
Foote, L. F., discussion on the inebriate 300

Gastric ulcer, the etiology and pathology of 158
Gerrish, W. A., discussion on surgery in general practice 216

Digitized by Google

Gerrish, W. Albert, surgery in general practice..... 211
Goodrich, Judd, acute infections of the knee-joint and their surgical treatment 117
Graham, Christopher, duodenal ulcer, symptoms and diagnosis, based on forty-six operated cases: 33 males and 13 females.... 185
Greene, Charles Lyman, the art and science of medicine..... 35

Haynes, James C., address of welcome..... 31
Head, George Douglas, discussion on chronic myocarditis..... 154
Head, George Douglas, the etiological relationship between cancer and ulcer of the stomach..... 193
Hensel, E. A., causes and treatment of acute articular rheumatism 318
Hensel, E. A., discussion on acute articular rheumatism..... 329
Heart, the, in acute infections..... 274
Hunter, C. H., discussion on the inebriate..... 300
Hunter, C. H., discussion on tuberculosis..... 229
Hypertrophy and inflammation of the male breast..... 267

Inebriate, the, a medical and social problem..... 296

Johnson, C., discussion on pneumonia..... 81

Kelsey, C. A., discussion on cervical glands..... 294
Kelsey, C. A., discussion on the inebriate..... 299
Kelsey, C. A., discussion on tuberculosis..... 287
Kidneys, subparietal injuries of the, with report of four cases..... 230
Knee-joint, acute infections of, and their surgical treatment..... 117

Lachrymal sac, extirpation of the, a new and simple method of operating, with remarks upon various other methods of treating affections of the lacrymal sac and canal..... 178
Leavitt, Frederick, the importance of ante-partum examination.... 206
Litzenberg, J. C., report of three cases of pregnancy following operation for suspension of the uterus..... 132
Lower extremity, fractures of, some notes on management of with Hodgen's splint, with report of cases..... 59

MacLaren, A., discussion on infections of the knee-joint..... 123
MacLaren, A., discussion on varicose veins..... 335
MacLaren, Archibald, prostatectomy and its results..... 86
McCoy, Mary, culinary hygiene: some hints on preparation and selection of food..... 338
McCoy, Mary, discussion on culinary hygiene..... 344
McCoy, Mary, discussion on the inebriate..... 299
McGaughey, J. B., discussion on pneumonia..... 84
McGaughey, J. B,. pneumonia: problems in treatment..... 75
McKeon, James, discussion on adrenalin..... 157
McKeon, Owen, discussion on acute articular rheumatism..... 329
Magaw, Alice, observations drawn from an experience of eleven thousand anesthesias 91
Mayo, C. H., discussion on anesthesia..... 100
Mayo, C. H., discussion on cervical glands..... 293
Mayo, C. H., discussion on epithelioma of the lip..... 376
Mayo, C. H., discussion on infections of the knee-joint..... 122
Mayo, C. H., discussion on pneumonia..... 82

Digitized by Google

Mayo, C. H., the surgical treatment of varicose veins..... 331
Mayo, C. H., discussion on varicose veins..... 337
Materia medica and therapeutics, the modern teaching of..... 256
Medical education, scientific methods in..... 346
Medicine, the art and science of..... 35
Membership of County Societies..... 399
Meningocele, occipital, with a report of a case operated upon..... 260
Moore, J. E., discussion on anesthesia..... 99
Moore, J. E., discussion on varicose veins..... 335
Myocarditis, chronic, the diagnosis of..... 139
Myocarditis, chronic, prognosis and treatment of..... 146

Nasal suppuration from a practical standpoint..... 246
Nippert, L. A., discussion on acute articular rheumatism..... 328
Nippert, L. A., discussion on the heart in acute infections..... 281
Nootnagle, Charles F., ulcus ventriculi—round, gastric ulcer or peptic ulcer..... 166

Parker, E. H., nasal suppuration from a practical standpoint..... 246
Place of next meeting..... 2
Pneumonia, a short review of its treatment for the last fifty years 68
Pneumonia: problems in treatment..... 75
President's Address 35
Presidents of Association..... 411
Prostatectomy and its results..... 86

Read, H. K., discussion on anesthesia..... 102
Rees, Soren P., discussion on acute articular rheumatism..... 326
Rees, Soren P., discussion on the heart in acute infections..... 282
Rees, Soren P., the diagnosis of chronic myocarditis..... 139
Rheumatism, acute articular, causes and treatment of..... 318
Ritchie, H. P., discussion on operations for uterine displacement.. 137
Ritchie, H. P., the effect of the operations for uterine displacement upon subsequent pregnancy..... 125
Rochford, W. E., discussion on culinary hygiene..... 344
Rochford, W. E., discussion on varicose veins..... 335
Rogers, J. T., discussion on operations for uterine displacement.... 135
Roll of Honor..... 410
Roster 390

Schmauss, L. F., discussion on acute articular rheumatism..... 327
Schmauss, L. F., discussion on adrenalin..... 157
Schmauss, L. F., discussion on epithelioma of the lip..... 377
Schmauss, L. F., discussion on non-diphtheritic membranous anginas 113
Schmauss, F. L., discussion on surgery in general practice..... 215
Schmauss, F. L., discussion on varicose veins..... 336
Secretary, report of the..... 8
Shelden, W. D., the etiology and pathology of gastric ulcer..... 158
Staples, H. L., a study of electrical injuries..... 352
Stewart, J. Clark, discussion on epithelioma of the lip..... 377
Stewart, J. Clark, the surgical treatment of epithelioma of the lip 370
Stinchfield, A. W., discussion on chronic myocarditis..... 151
Surgery in general practice..... 211
Surgery, oration on..... 44

Digitized by Google

Sweetser, H. B., discussion on infections of the knee-joint..... 123
Syphilis, some ideas regarding the nature of..... 202

Thomas, D. O., discussion on acute articular rheumatism..... 326
Throat, gangrene of the..... 312
Todd, Frank C., extirpation of the lachrymal sac, a new and simple method of operation, with remarks upon various other methods of treating affections of the lachryneal sac and canal..... 178
Towers, Mary, discussion on acute articular rheumatism..... 324
Treasurer, report of..... 18
Tuberculosis a preventable disease, with especial consideration of the distribution of tubercle-bacilli and the usual avenues of infection 218
Tuberculosis, the recognition of, as a contagious disease..... 283

Ulcer, gastric, the etiology and pathology of..... 158
Ulcus ventriculi—round, gastric ulcer or peptic ulcer..... 166
Uterine displacement, the effect of the operations for, upon subsequent pregnancy 125
Uterus, suspension of the, report of three cases of pregnancy following operations for..... 132

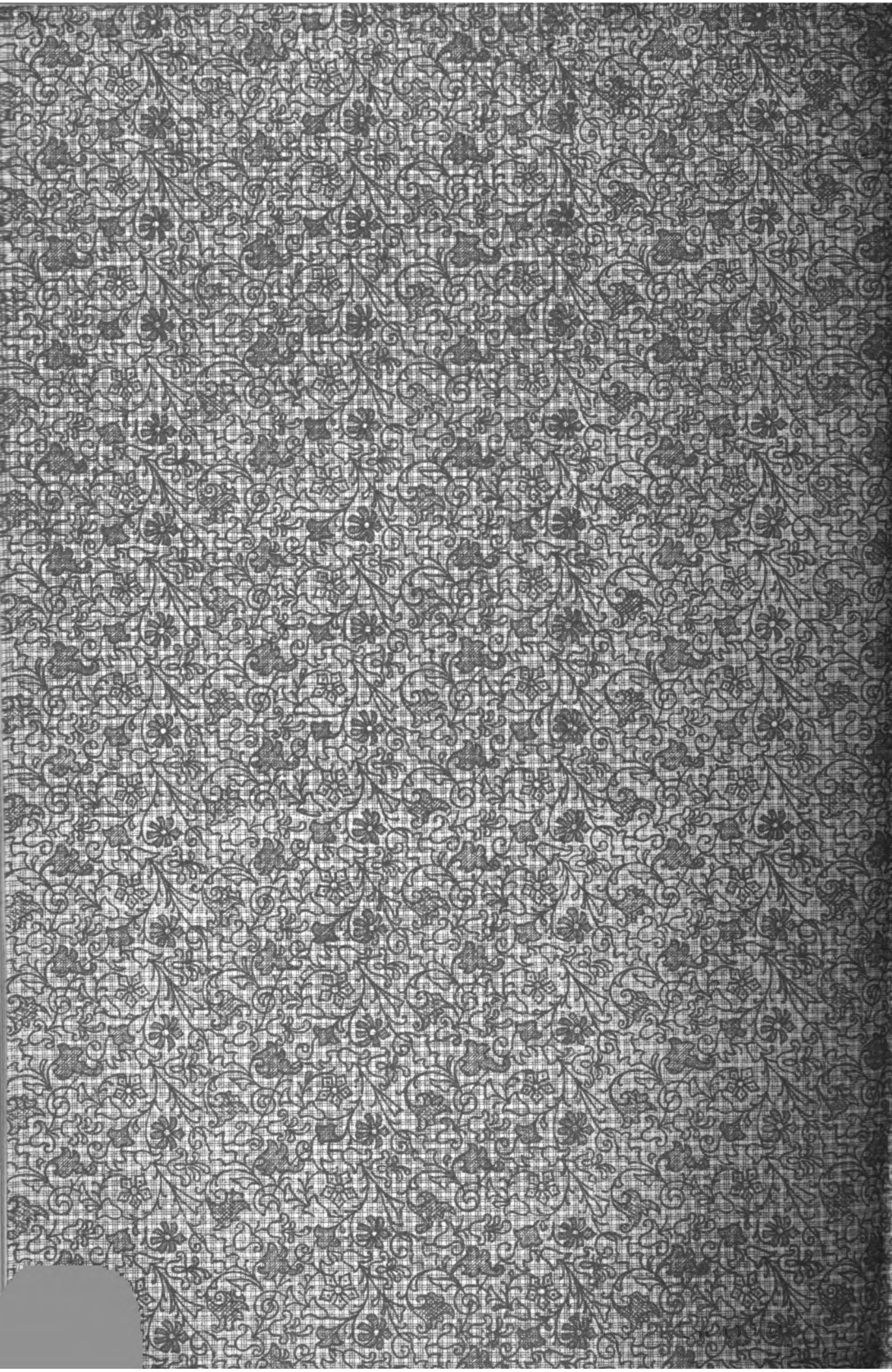
Veins, varicose, the surgical treatment of..... 331

Watson, J. A., discussion on nasal suppuration..... 254
Watson, J. A., gangrene of the throat..... 312
Wellner, George C., the democracy of education in medicine: a plea for broadened policies..... 303
Wesbrook, F. F., discussion of non-diphtheritic membranous anginas 114
Wheeler, H. N., discussion on varicose veins..... 336
Wilson, L. B., discussion on acute articular rheumatism..... 328
Wilson, Louis B., on certain non-diphtheritic membranous anginas 103
Wilson, Louis B., discussion on non-diphtheritic membranous anginas 116
Wright, Franklin R., some ideas regarding the nature of syphilis.. 202

Digitized by Google

int..... 1
..... 2
..... 2
..... 2
and sim-
ier meth-
ial..... 1
..... 2
..... 1
ation of
s of in-
..... 2
..... 2
..... 1
..... 1
subse-
..... 1
v fol-
..... 1
..... 3
.... 2
.... 3
a
303
us
.. 11
.. 33
. 3
s 1
s
11
2

Digitized by Google



COUNTWAY LIBRARY
HC 2T9F +